Lenovo IdeaPad Z500/P500

Hardware Maintenance Manual

Note:

Before using this information and the product it supports, be sure to read the general information under “Notices” on page 85.

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Contents

About this manual

This manual contains service and reference information for the following Lenovo IdeaPad product:

Lenovo IdeaPad Z500/P500

Use this manual to troubleshoot problems.

The manual is divided into the following sections:

- The common sections provide general information, guidelines, and safety information required for servicing computers.
- The product-specific section includes service, reference, and product-specific parts information.

Important:

This manual is intended only for trained servicers who are familiar with Lenovo IdeaPad products. Use this manual to troubleshoot problems effectively.

Before servicing a Lenovo IdeaPad product, make sure to read all the information under "Safety information" on page 1 and "Important service information" on page 16.

Safety information

This chapter presents the following safety information that you need to get familiar with before you service an Lenovo IdeaPad Z500/P500 computer:

General safety

Follow these rules below to ensure general safety:

- Observe a good housekeeping in the area where the machines are put during and after the maintenance.
- When lifting any heavy object:
  1. Make sure that you can stand safely without slipping.
  2. Distribute the weight of the object equally between your feet.
  3. Use a slow lifting force. Never move suddenly or twist when you attempt to lift it.
  4. Lift it by standing or pushing up with your leg muscles; this action could avoid the strain from the muscles in your back. Do not attempt to lift any object that weighs more than 16 kg (35 lb) or that you think is too heavy for you.
- Do not perform any action that causes hazards to the customer, or that makes the machine unsafe.
- Before you start the machine, make sure that other service representatives and the customer are not in a hazardous position.
- Place removed covers and other parts in a safe place, keeping them away from all personnel, while you are servicing the machine.
- Keep your toolcase away from walk areas so that other people will not trip it over.
- Do not wear loose clothing that can be trapped in the moving parts of the machine. Make sure that your sleeves are fastened or rolled up above your elbows. If your hair is long, fasten it.
- Insert the ends of your necktie or scarf inside clothing or fasten it with the nonconductive clip, about 8 centimeters (3 inches) from the end.
- Do not wear jewelry, chains, metal-frame eyeglasses, or metal fasteners for your clothing.

  Attention: Metal objects are good electrical conductors.
- Wear safety glasses when you are hammering, drilling, soldering, cutting wire, attaching springs, using solvents, or working in any other conditions that may be hazardous to your eyes.
- After service, reinstall all safety shields, guards, labels, and ground wires. Replace any safety device that is worn or defective.
- Reinstall all covers correctly before returning the machine to the customer.
- Fan louvers on the machine help to prevent the overheating of internal components. Do not obstruct fan louvers or cover them with labels or stickers.

Electrical safety

Observe the following rules when working on electrical equipments.

Important:

Use only approved tools and test equipments. Some hand tools have handles covered with a soft material that does not insulate you when working with live electrical currents.

Many customers have rubber floor mats near their machines that contain small conductive fibers to decrease electrostatic discharges. Do not use such kind of mat to protect yourself from electrical shock.

- Find the room emergency power-off (EPO) switch, disconnecting the switch or electrical outlet. If an electrical accident occurs, you can then operate the switch or unplug the power cord quickly.
- Do not work alone under hazardous conditions or near the equipment that has hazardous voltages.
- Disconnect all power before:
  - Performing a mechanical inspection
  - Working near power supplies
  - Removing or installing main units
- Before you start to work on the machine, unplug the power cord. If you cannot unplug it, ask the customer to power-off the wall box that supplies power to the machine, and to lock the wall box in the off position.
- If you need to work on a machine that has exposed electrical circuits, observe the following precautions:
  - Ensure that another person, familiar with the power-off controls, is near you.

    Attention: Another person must be there to switch off the power, if necessary.
  - Use only one hand when working with powered-on electrical equipment; keep the other hand in your pocket or behind your back.

    Attention: An electrical shock can occur only when there is a complete circuit. By observing the above rule, you may prevent a current from passing through your body.
  - When using testers, set the controls correctly and use the approved probe leads and accessories for that tester.
  - Stand on suitable rubber mats (obtained locally, if necessary) to insulate you from grounds such as metal floor strips and machine frames.

Observe the special safety precautions when you work with very high voltages; instructions for these precautions are in the safety sections of maintenance information. Be extremely careful when you measure the high voltages.

- Regularly inspect and maintain your electrical hand tools for safe operational condition.
- Do not use worn or broken tools and testers.
- Never assume that power has been disconnected from a circuit. First, check it to make sure that it has been powered off.

- Always look carefully for possible hazards in your work area. Examples of these hazards are moist floors, nongrounded power extension cables, power surges, and missing safety grounds.
- Do not touch live electrical circuits with the reflective surface of a plastic dental mirror. The surface is conductive; such touching can cause personal injury and machine damage.
- Do not service the following parts with the power on when they are removed from their normal operating places in a machine:
  - Power supply units
  - Pumps
  - Blowers and fans
  - Motor generators

  and similar units. (This practice ensures correct grounding of the units.)
- If an electrical accident occurs:
  - Caution: do not become a victim yourself.
  - Switch off the power.
  - Send the victim to get medical aid.

Safety inspection guide

The purpose of this inspection guide is to assist you in identifying potential unsafe conditions. As each machine was designed and built, required safety items were installed to protect users and service personnel from injury. This guide addresses only those items. You should use good judgment to identify potential safety hazards according to the attachment of non-Lenovo IdeaPad features or options not covered by this inspection guide.

If any unsafe conditions are present, you must determine how serious the apparent hazard could be and whether you can continue without first correcting the problem.

Consider these conditions and the safety hazards they present:

- Electrical hazards, especially primary power (primary voltage on the frame can cause serious or fatal electrical shock)
- Explosive hazards, such as a damaged CRT face or a bulging capacitor
- Mechanical hazards, such as loose or missing hardware

To determine whether there are any potential unsafe conditions, use the following checklist at the beginning of every service task. Begin the checks with the power off, and the power cord disconnected.

Checklist:

1. Check exterior covers for damage (loose, broken, or sharp edges).
2. Turn off the computer. Disconnect the power cord.
3. Check the power cord for:
    a. A third-wire ground connector in good condition. Use a meter to measure third-wire ground continuity for 0.1 ohm or less between the external ground pin and the frame ground.
    b. The power cord should be the type specified in the parts list.
    c. Insulation must not be frayed or worn.
4. Check for cracked or bulging batteries.
5. Remove the cover.
6. Check for any obvious non-Lenovo IdeaPad alterations. Use good judgment as to the safety of any non-Lenovo IdeaPad alterations.
7. Check inside the unit for any obvious unsafe conditions, such as metal filings, contamination, water or other liquids, or signs of fire or smoke damage.
8. Check for worn, frayed, or pinched cables.
9. Check that the power-supply cover fasteners (screws or rivets) have not been removed or tampered with.

Handling devices that are sensitive to electrostatic discharge

Any computer part containing transistors or integrated circuits (ICs) should be considered sensitive to electrostatic discharge (ESD). ESD damage can occur when there is a difference in charge between objects. Protect against ESD damage by equalizing the charge so that the machine, the part, the work mat, and the person handling the part are all at the same charge.

Notes:

1. Use product-specific ESD procedures when they exceed the requirements noted here.
2. Make sure that the ESD protective devices you use have been certified (ISO 9000) as fully effective.

When handling ESD-sensitive parts:

- Keep the parts in protective packages until they are inserted into the product.
- Avoid contact with other people.
- Wear a grounded wrist strap against your skin to eliminate static on your body.
- Prevent the part from touching your clothing. Most clothing is insulative and retains a charge even when you are wearing a wrist strap.
- Use the black side of a grounded work mat to provide a static-free work surface. The mat is especially useful when handling ESD-sensitive devices.
- Select a grounding system, such as those listed below, to provide protection that meets the specific service requirement.

Note:

The use of a grounding system to guard against ESD damage is desirable but not necessary.

– Attach the ESD ground clip to any frame ground, ground braid, or green-wire ground.
– When working on a double-insulated or battery-operated system, use an ESD common ground or reference point. You can use coax or connector-outside shells on these systems.
– Use the round ground prong of the ac plug on ac-operated computers.

Grounding requirements

Electrical grounding of the computer is required for operator safety and correct system function. Proper grounding of the electrical outlet can be verified by a certified electrician.

Safety notices: multilingual translations

The safety notices in this section are provided in English, French, German, Hebrew, Italian, Japanese, and Spanish.

Safety notice 1

Before the computer is powered on after FRU replacement, make sure all screws, springs, and other small parts are in place and are not left loose inside the computer. Verify this by shaking the computer and listening for rattling sounds. Metallic parts or metal flakes can cause electrical shorts.

Avant de remettre l'ordinateur sous tension après remplacement d'une unité en clientèle, vérifiez que tous les ressorts, vis et autres pièces sont bien en place et bien fixées. Pour ce faire, secouez l'unité et assurez-vous qu'aucun bruit suspect ne se produit. Des pièces métalliques ou des copeaux de métal pourraient causer un court-circuit.

Bevor nach einem FRU-Austausch der Computer wieder angeschlossen wird, muß sichergestellt werden, daß keine Schrauben, Federn oder andere Kleinteile fehlen oder im Gehäuse vergessen wurden. Der Computer muß geschüttelt und auf Klappergeräusche geprüft werden. Metallteile oder-splitter können Kurzschlüsse erzeugen.

לפני הפעלת המחשב לאחר החלפת FRU יש לוודא
שכל הברגים, הקפיצים, וחלקים קטנים אחרים נמצאים
במקומם ואינם חופשיים לזוז בתוך המחשב. כדי לוודא
זאת, יש לטלטל את המחשב ולהקשיב לגילוי קולות שקשוק.
חלקי או שבבי מתכת עלולים לגרום לקצרים חשמליים.

Prima di accendere l'elaboratore dopo che é stata effettuata la sostituzione di una FRU, accertarsi che tutte le viti, le molle e tutte le altri parti di piccole dimensioni siano nella corretta posizione e non siano sparse all'interno dell'elaboratore. Verificare ciò scuotendo l'elaboratore e prestando attenzione ad eventuali rumori; eventuali parti o pezzetti metallici possono provocare cortocircuiti pericolosi.

FRU の交換後、コンピュータの電源を入れる前に、ねじ、バネ、その他の小さな部品がすべて正しい位置にあり、またコンピュータの内部で緩んでいないことを確認してください。
これを確認するには、コンピュータを振って、カチャカチャと音がしないか確かめます。金属部品や金属破片はショートの原因になることがあります。

Antes de encender el sistema despues de sustituir una FRU, compruebe que todos los tornillos, muelles y demás piezas pequeñas se encuentran en su sitio y no se encuentran sueltas dentro del sistema. Compruébelo agitando el sistema y escuchando los posibles ruidos que provocarían. Las piezas metálicas pueden causar cortocircuitos eléctricos.

Safety notice 2

⚠ DANGER

Some standby batteries contain a small amount of nickel and cadmium. Do not disassemble a standby battery, recharge it, throw it into fire or water, or short-circuit it. Dispose of the battery as required by local ordinances or regulations. Use only the battery in the appropriate parts listing. Use of an incorrect battery can result in ignition or explosion of the battery.

Certaines batteries de secours contiennent du nickel et du cadmium. Ne les démontez pas, ne les rechargez pas, ne les exposez ni au feu ni à l’eau. Ne les mettez pas en court-circuit. Pour les mettre au rebut, conformez-vous à la réglementation en vigueur. Lorsque vous remplacez la pile de sauvegarde ou celle de l’horloge temps réel, veillez à n’utiliser que les modèles cités dans la liste de pièces détachées adéquate. Une batterie ou une pile inappropriée risque de prendre feu ou d’exploser.

Die Bereitschaftsbatterie, die sich unter dem Diskettenlaufwerk befindet, kann geringe Mengen Nickel und Cadmium enthalten. Sie darf nicht zerlegt, wiederaufgeladen, kurzgeschlossen, oder Feuer oder Wasser ausgesetzt werden. Bei der Entsorgung die örtlichen Bestimmungen für Sondermüll beachten. Beim Ersetzen der Bereitschafts-oder Systembatterie nur Batterien des Typs verwenden, der in der Ersatzteilliste aufgeführt ist. Der Einsatz falscher Batterien kann zu Entzündung oder Explosion führen.

סוללות המתנה מסוימות מכילות כמות קטנה
של ניקל וקדמיום. אין לפרק סוללת המתנה,
לטעון אותה מחדש, להשליך אותה לאש או
למים או לקצר אותה. יש לסלק את הסוללה
כנדרש על ידי התקנות והחוקים המקומיים. יש
להשתמש רק בסוללה המופיעה ברשימת החלקים
המתאימה. שימוש בסוללה לא מתאימה עלול
לגרום להצתה או התפוצצות של הסוללה.

Alcune batterie di riserva contengono una piccola quantità di nichel e cadmio. Non smontarle, ricaricarle, gettarle nel fuoco o nell’acqua né cortocircuitarle. Smaltirle secondo la normativa in vigore (DPR 915/82, successive disposizioni e disposizioni locali). Quando si sostituisce la batteria dell’RTC (real time clock) o la batteria di supporto, utilizzare soltanto i tipi inseriti nell’appropriato Catalogo parti. L’impiego di una batteria non adatta potrebbe determinare l’incendio o l’esplosione della batteria stessa.

予備バッテリーの中には少量のニッケルとカドミウムが含まれているものがあります。したがって、予備バッテリーの分解、再充電、火または水の中への投棄、またはショートさせることは決して行わないでください。バッテリーを廃棄する場合は地方自治体の条例に従ってください。適切なパーツ・リストにあるバッテリーだけを使用してください。誤ったバッテリーを使用すると、バッテリーが発火したり、爆発したりすることがあります。

Algunas baterías de reserva contienen una pequeña cantidad de níquel y cadmio. No las desmonte, ni recargue, ni las eche al fuego o al agua ni las cortocircuite. Deséchelas tal como dispone la normativa local. Utilice sólo baterías que se encuentren en la lista de piezas. La utilización de una batería no apropiada puede provocar la ignición o explosión de la misma.

Safety notice 3

⚠ DANGER

The battery pack contains small amounts of nickel. Do not disassemble it, throw it into fire or water, or short-circuit it. Dispose of the battery pack as required by local ordinances or regulations. Use only the battery in the appropriate parts listing when replacing the battery pack. Use of an incorrect battery can result in ignition or explosion of the battery.

La batterie contient du nickel. Ne la démontez pas, ne l'exposez ni au feu ni à l'eau. Ne la mettez pas en court-circuit. Pour la mettre au rebut, conformez-vous à la réglementation en vigueur. Lorsque vous remplacez la batterie, veillez à n'utiliser que les modèles cités dans la liste de pièces détachées adéquate. En effet, une batterie inappropriée risque de prendre feu ou d'exploser.

Akkus enthalten geringe Mengen von Nickel. Sie dürfen nicht zerlegt, wiederaufgeladen, kurzgeschlossen, oder Feuer oder Wasser ausgesetzt werden. Bei der Entsorgung die örtlichen Bestimmungen für Sondermüll beachten. Beim Ersetzen der Batterie nur Batterien des Typs verwenden, der in der Ersatzteilliste aufgeführt ist. Der Einsatz falscher Batterien kann zu Entzündung oder Explosion führen.

מארז הסוללה מכיל כמות קטנה של ניקל וקדמיום. אין לפרק את מארז הסוללה, להשליך אותו לאש או למים או לקצר אותו. יש לסלק את מארז הסוללה הסוללה כנדרש על ידי התקנות והחוקים המקומיים. יש להשתמש רק בסוללה המופיעה ברשימת החלקים המתאימה בזמן החלפת מארז הסוללה. שימוש בסוללה לא מתאימה עלול לגרום להצתה או התפוצצות של הסוללה.

La batteria contiene piccole quantità di nichel. Non smontarla, gettarla nel fuoco o nell'acqua né cortocircuitarla. Smaltirla secondo la normativa in vigore (DPR 915/82, successive disposizioni e disposizioni locali). Quando si sostituisce la batteria, utilizzare soltanto i tipi inseriti nell'appropriato Catalogo parti. L'impiego di una batteria non adatta potrebbe determinare l'incendio o l'esplosione della batteria stessa.

バッテリー・パックには少量のニッケルが含まれています。バッテリー・パックを分解したり、火または水の中に投げ込んだり、ショートさせないでください。バッテリー・パックの廃棄にあたっては、地方自治体の条例または規則に従ってください。バッテリー・パックを交換するときは、適切なパーツ・リストにあるバッテリーだけを使用してください。誤ったバッテリーを使用すると、バッテリーが発火したり、爆発したりすることがあります。

Las baterías contienen pequeñas cantidades de níquel. No las desmonte, ni recargue, ni las eche al fuego o al agua ni las cortocircuite. Deséchelas tal como dispone la normativa local. Utilice sólo baterías que se encuentren en la lista de piezas al sustituir la batería. La utilización de una batería no apropiada puede provocar la ignición o explosión de la misma.

Safety notice 4

⚠ DANGER

The lithium battery can cause a fire, an explosion, or a severe burn. Do not recharge it, remove its polarized connector, disassemble it, heat it above 100°C (212°F), incinerate it, or expose its cell contents to water. Dispose of the battery as required by local ordinances or regulations. Use only the battery in the appropriate parts listing. Use of an incorrect battery can result in ignition or explosion of the battery.

La pile de sauvegarde contient du lithium. Elle présente des risques d'incendie, d'explosion ou de brûlures graves. Ne la rechargez pas, ne retirez pas son connecteur polarisé et ne la démontez pas. Ne l'exposez pas à une temperature supérieure à 100°C, ne la faites pas brûler et n'en exposez pas le contenu à l'eau. Mettez la pile au rebut conformément à la réglementation en vigueur. Une pile inappropriée risque de prendre feu ou d'exploser.

Die Systembatterie ist eine Lithiumbatterie. Sie kann sich entzünden, explodieren oder schwere Verbrennungen hervorrufen. Batterien dieses Typs dürfen nicht aufgeladen, zerlegt, über 100 C erhitzt oder verbrannt werden. Auch darf ihr Inhalt nicht mit Wasser in Verbindung gebracht oder der zur richtigen Polung angebrachte Verbindungsstecker entfernt werden. Bei der Entsorgung die örtlichen Bestimmungen für Sondermüll beachten. Beim Ersetzen der Batterie nur Batterien des Typs verwenden, der in der Ersatzteilliste aufgeführt ist. Der Einsatz falscher Batterien kann zu Entzündung oder Explosion führen.

סוללת הליתיום עלולה לגרום לשריפה, להתפוצצות או לכוויות קשות. אין לטעון אותה מחדש, לסלק את המחבר המקוטב שלה, לפרק אותה או לחמם אותה לטמפרטורה העולה על 100 מעלות צלזיוס. אין לשרוף את הסוללה ואין לחשוף את תוכן התא למים. יש לסלק את הסוללה כנדרש בתקנות ובחוקים המקומיים. יש להשתמש רק בסוללה המופיעה ברשימת החלקים המתאימים. שימוש בסוללה אחרת עלול לגרום לסכנת שריפה או התפוצצות.

La batteria di supporto e una batteria al litio e puo incendiarsi, esplodere o procurare gravi ustioni. Evitare di ricaricarla, smontarne il connettore polarizzato, smontarla, riscaldarla ad una temperatura superiore ai 100 gradi centigradi, incendiarla o gettarla in acqua. Smaltirla secondo la normativa in vigore (DPR 915/82, successive disposizioni e disposizioni locali). L'impiego di una batteria non adatta potrebbe determinare l'incendio o l'esplosione della batteria stessa.

リチウム・バッテリーは、火災、爆発、または重症のやけどを引き起こすことがあります。バックアップ・バッテリーの充電、その極性コネクターの取り外し、バッテリー本体の分解、100 ℃ (212 ゚F) 以上への加熱、焼却、電池の中身を水に浸すことはしないでください。バッテリーを廃棄する場合は地方自治体の条例に従ってください。適切なパーツ・リストにあるバッテリーだけを使用してください。誤ったバッテリーを使用すると、バッテリーが発火したり、爆発したりすることがあります。

La batería de repuesto es una batería de litio y puede provocar incendios, explosiones o quemaduras graves. No la recargue, ni quite el conector polarizado, ni la desmonte, ni caliente por encima de los 100°C (212°F), ni la incinere ni exponga el contenido de sus celdas al agua. Deséchela tal como dispone la normativa local.

Safety notice 5

If the LCD breaks and the fluid from inside the LCD gets into your eyes or on your hands, immediately wash the affected areas with water at least for 15 minutes. Seek medical care if any symptoms caused by the fluid are present after washing.

Si le panneau d’affichage à cristaux liquides se brise et que vous recevez dans les yeux ou sur les mains une partie du fluide, rincez-les abondamment pendant au moins quinze minutes. Consultez un médecin si des symptômes persistent après le lavage.

Die Leuchtstoffröhre im LCD-Bildschirm enthält Quecksilber. Bei der Entsorgung die örtlichen Bestimmungen für Sondermüll beachten. Der LCD-Bildschirm besteht aus Glas und kann zerbrechen, wenn er unsachgemäß behandelt wird oder der Computer auf den Boden fällt. Wenn der Bildschirm beschädigt ist und die darin befindliche Flüssigkeit in Kontakt mit Haut und Augen gerät, sollten die betroffenen Stellen mindestens 15 Minuten mit Wasser abgespült und bei Beschwerden anschließend ein Arzt aufgesucht werden.

אם מסך הגביש הנוזלי (LCD) נשבר והנוזל מתוך המסך בא במגע עם עיניכם או ידיכם, שטפו את האזורים הנגועים מיד במים במשך 15 דקות לפחות. פנו לקבלת עזרה רפואית אם תסמינים הנובעים מהמגע עם הנוזל נמשכים לאחר השטיפה.

Nel caso che caso l’LCD si dovesse rompere ed il liquido in esso contenuto entrasse in contatto con gli occhi o le mani, lavare immediatamente le parti interessate con acqua corrente per almeno 15 minuti; poi consultare un medico se i sintomi dovessero permanere.

LCD が破損し、 LCD の中の液体が目に入ったり、手に触れたりした場合は、液体が触れた部分を少なくとも 15 分間洗い流してください。洗い流した後に、液体によって何らかの症状が現れた場合は、医師の治療を受けてください。

Si la LCD se rompe y el fluido de su interior entra en contacto con sus ojos o sus manos, lave inmediatamente las áreas afectadas con agua durante 15 minutos como mínimo. Obtenga atención medica si se presenta algún síntoma del fluido despues de lavarse.

Safety notice 6

⚠ DANGER

To avoid shock, do not remove the plastic cover that protects the lower part of the inverter card.

Afin d’éviter tout risque de choc électrique, ne retirez pas le cache en plastique protégeant la partie inférieure de la carte d’alimentation.

Aus Sicherheitsgründen die Kunststoffabdeckung, die den unteren Teil der Spannungswandlerplatine umgibt, nicht entfernen.

כדי למנוע התחשמלות, אין להסיר את מכסה הפלסטיק
המגן על חלקו התחתון של הכרטיס ההפוך.

Per evitare scosse elettriche, non rimuovere la copertura in plastica che avvolge la parte inferiore della scheda invertitore.

感電を防ぐため、インバーター・カードの下部を保護しているプラスチック・カバーを外さないでください。

Para evitar descargas, no quite la cubierta de plástico que rodea la parte baja de la tarjeta invertida.

Safety notice 7

⚠ DANGER

Though the main batteries have low voltage, a shorted or grounded battery can produce enough current to burn personnel or combustible materials.

Bien que le voltage des batteries principales soit peu élevé, le court-circuit ou la mise à la masse d’une batterie peut produire suffisamment de courant pour brûler des matériaux combustibles ou causer des brûlures corporelles graves.

Obwohl Hauptbatterien eine niedrige Spannung haben, können sie doch bei Kurzschluß oder Erdung genug Strom abgeben, um brennbare Materialien zu entzünden oder Verletzungen bei Personen hervorzurufen.

אף שהסוללות הראשיות הן בעלות מתח נמוך, סוללה
מקוצרת או מוארקת עלולה להפיק זרם מספיק לגרימת
כוויות או להצתת חומרים דליקים.

Sebbene le batterie di alimentazione siano a basso voltaggio, una batteria in corto circuito o a massa può fornire corrente sufficiente da bruciare materiali combustibili o provocare ustioni ai tecnici di manutenzione.

メイン・バッテリーの電圧は低くても、ショートしたり、接地したバッテリーが、作業者にやけどを負わせたり、可燃物を燃やすだけの電流を発生させる場合があります。

Aunque las baterías principales tienen un voltaje bajo, una batería cortocircuitada o con contacto a tierra puede producir la corriente suficiente como para quemar material combustible o provocar quemaduras en el personal.

Safety notice 8

⚠ DANGER

Before removing any FRU, turn off the computer, unplug all power cords from electrical outlets, remove the battery pack, and then disconnect any interconnecting cables.

Avant de retirer une unité remplaçable en clientèle, mettez le système hors tension, débranchez tous les cordons d’alimentation des socles de prise de courant, retirez la batterie et déconnectez tous les cordons d’interface.

Die Stromzufuhr muß abgeschaltet, alle Stromkabel aus der Steckdose gezogen, der Akku entfernt und alle Verbindungskabel abgenommen sein, bevor eine FRU entfernt wird.

לפני סילוק FRU כלשהו, יש לכבות את המחשב,
לנתק את כל כבלי החשמל משקעי החשמל, להוציא
את מארז הסוללה, ואז לנתק כבלי חיבור אחרים
אם יש כאלה.

Prima di rimuovere qualsiasi FRU, spegnere il sistema, scollegare dalle prese elettriche tutti i cavi di alimentazione, rimuovere la batteria e poi scollegare i cavi di interconnessione.

FRU を取り外す前に、 ThinkPad の電源を切って、すべての電源コードをコンセントから外してください。次に、バッテリー・パックを外し、相互接続ケーブルを外してください。

Antes de quitar una FRU, apague el sistema, desenchufe todos los cables de las tomas de corriente eléctrica, quite la batería y, a continuación, desconecte cualquier cable de conexión entre dispositivos.

Laser compliance statement

Some models of Lenovo IdeaPad computer are equipped from the factory with an optical storage device such as a CD-ROM drive or a DVD-ROM drive. Such devices are also sold separately as options. If one of these drives is installed, it is certified in the U.S. to conform to the requirements of the Department of Health and Human Services 21 Code of Federal Regulations (DHHS 21 CFR) Subchapter J for Class 1 laser products. Elsewhere, the drive is certified to conform to the requirements of the International Electrotechnical Commission (IEC) 825 and CENELEC EN 60 825 for Class 1 laser products.

If a CD-ROM drive, a DVD-ROM drive, or another laser device is installed, note the following:

⚠ CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

O uso de controles, ajustes ou desempenho de procedimentos diferentes daqueles aqui especificados pode resultar em perigosa exposição à radiação.

凡未在这里指明的任何控制用法、调整、行为，
都会导致严重后果。

Pour éviter tout risque d'exposition au rayon laser, respectez les consignes de réglage et d'utilisation des commandes, ainsi que les procédures décrites.

Werden Steuer- und Einstellelemente anders als hier festgesetzt verwendet, kann gefährliche Laserstrahlung auftreten.

Az itt előírt eljárásoktól, beállításoktól és vezérlésektől
eltérni a lézersugárzás veszélye miatt kockázatos !

L'utilizzo di controlli, regolazioni o l'esecuzione di procedure diverse da quelle specificate possono provocare l'esposizione a.

Использование элементов настройки и
выполнение процедур иных, чем указано
здесь, может привести к опасному
радиационному облучению.

Použitie kontrôl, úprav alebo iných vykonaní od iných
výrobcov, ako je v tomto špecifikované, mohlo by mať
za následok nebezpečenstvo vystavenia sa vyžiarovaniu.

本書で指定された内容以外の、お客様による整備、調整、または手順を行った場合、レーザー光の放射の危険があります。

El uso de controles o ajustes o la ejecución de procedimientos distintos de los aquí especificados puede provocar la exposición a radiaciones peligrosas.

Opening the CD-ROM drive, the DVD-ROM drive, or any other optical storage device could result in exposure to hazardous laser radiation. There are no serviceable parts inside those drives. **Do not open**.

A CD-ROM drive, a DVD-ROM drive, or any other storage device installed may contain an embedded Class 3A or Class 3B laser diode. Note the following:

⚠ DANGER

Emits visible and invisible laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.

Radiação por raio laser ao abrir. Não olhe fixo no feixe de luz, não olhe diretamente por meio de instrumentos óticos e evite exposição direta com o feixe de luz.

开启时会有激光发射时，请勿盯视激光光束，请勿直接查看
视觉仪器，并且避免直接接触在激光光束之中。

Rayonnement laser si carter ouvert. Évitez de fixer le faisceau, de le regarder directement avec des instruments optiques, ou de vous exposer au rayon.

Laserstrahlung bei geöffnetem Gerät. Nicht direkt oder über optische Instrumente in den Laserstrahl sehen und den Strahlungsbereich meiden.

Kinyitáskor lézersugár ! Ne nézzen bele se szabad szemmel, se optikai eszközökkel. Kerülje a sugárnyalábbal való érintkezést!

Aprendo l'unità vengono emesse radiazioni laser. Non fissare il fascio, non guardarlo direttamente con strumenti ottici e evitare l'esposizione diretta al fascio.

Открывая, берегитесь лазерного излучения.
Не смотрите на луч, не разглядывайте его
с помощью оптических инструментов, а также
избегайте прямого воздействия лазерного луча.

Keď je laserová jednotka otvorená. Vyhnite sa priamemu
pohľadu a nehľadte priamo s optickými nástrojmi do ľúča
a vyhnite sa priamemu vystaveniu ľúčov.

開けるとレーザー光が放射されます。光線を見つめたり、光学機械を使って直接見
たりしないでください。

Radiación láser al abrir. No mire fijamente ni examine con instrumental óptico el haz de luz. Evite la exposición directa al haz.

Important service information

This chapter presents the following important service information:

Important:

BIOS and device driver fixes are customer-installable. The BIOS and device drivers are posted on the customer support site: http://consumersupport.lenovo.com/.

Strategy for replacing FRUs

Before replacing parts:

Make sure that all software fixes, drivers, and BIOS downloads are installed before replacing any FRUs listed in this manual.

After a system board is replaced, ensure that the latest BIOS is loaded to the system board before completing the service action.

To download software fixes, drivers, and BIOS, follow the steps below:

1. Go to http://consumersupport.lenovo.com/.
2. Enter a serial number or select a product or use Lenovo smart downloading.
3. Select the BIOS/Driver/Applications and download.
4. Follow the directions on the screen and install the necessary software.

Use the following strategy to prevent unnecessary expense for replacing and servicing FRUs:

- If you are instructed to replace an FRU, but the replacement does not solve the problem, reinstall the original FRU before you continue.
- Some computers have both a processor board and a system board. If you are instructed to replace either of them, and replacing one of them does not solve the problem, reinstall that board, and then replace the other one.
- If an adapter or a device consists of more than one FRU, any of the FRUs may be the cause of the error. Before replacing the adapter or device, remove the FRUs one by one to see if the symptoms change. Replace only the FRU that changed the symptoms.

Attention: The setup configuration on the computer you are servicing may have been customized. Running Automatic Configuration may alter the settings. Note the current configuration settings (using the View Configuration option); then, when service has been completed, verify that those settings remain in effect.

Strategy for replacing a hard disk drive

Always try to run a low-level format before replacing a hard disk drive. This will cause all customer data on the hard disk to be lost. Make sure that the customer has a current backup of the data before performing this action.

Attention: The drive startup sequence in the computer you are servicing may have been changed. Be extremely careful during write operations such as copying, saving, or formatting. If you select an incorrect drive, data or programs can be overwritten.

Important notice for replacing a system board

Some components mounted on a system board are very sensitive. Improper handling can cause damage to those components, and may cause a system malfunction.

Attention: When handling a system board:

- Do not drop the system board or apply any excessive force to it.
- Avoid rough handling of any kind.
- Avoid bending the system board and hard pushing to prevent cracking at each BGA (Ball Grid Array) chipset.

Important information about replacing RoHS compliant FRUs

RoHS, The Restriction of Hazardous Substances in Electrical and Electronic Equipment Directive (2002/95/EC) is a European Union legal requirement affecting the global electronics industry. RoHS requirements must be implemented on Lenovo products placed on the market after June 2006. Products on the market before June 2006 are not required to have RoHS compliant parts. If the original FRU parts are non-compliant, replacement parts can also be non-compliant. In all cases if the original FRU parts are RoHS compliant, the replacement part must also be RoHS compliant.

Note: RoHS and non-RoHS FRU part numbers with the same fit and function are identified with unique FRU part numbers.

Lenovo plans to transit to RoHS compliance well before the implementation date and expects its suppliers to be ready to support Lenovo's requirements and schedule in the EU. Products sold in 2005 and 2006 will contain some RoHS compliant FRUs. The following statement pertains to these products and any product Lenovo produces containing RoHS compliant FRUs.

RoHS compliant FRUs have unique FRU part numbers. Before or after the RoHS implementation date, failed RoHS compliant parts must always be replaced with RoHS compliant ones, so only the FRUs identified as compliant in the system HMM or direct substitutions for those FRUs may be used.

Products marketed before June 2006		Products marketed after June 2006	
Current or original part	**Replacement FRU**	**Current or original part**	**Replacement FRU**
Non-RoHS	Can be Non-RoHS	Must be RoHS	Must be RoHS
Non-RoHS	Can be RoHS		
Non-RoHS	Can sub to RoHS		
RoHS	Must be RoHS		

Note: A direct substitution is a part with a different FRU part number that is automatically shipped by the distribution center at the time of the order.

General checkout

This chapter presents the following information:

- “What to do first” on page 20
- “Power system checkout” on page 21

Before you go to the checkout, make sure to read the following important notes:

Important notes:

- **Only certified trained personnel can service the computer.**
- **Before replacing any FRU, read the entire page on removing and replacing FRUs.**
- **When you replace FRUs, use new nylon-coated screws.**
- **Be extremely careful during such write operations as copying, saving, or formatting.** Drives in the computer that you are servicing sequence might have been altered. If you select an incorrect drive, data or programs might be overwritten.
- **Replace an FRU only with another FRU of the correct model.** When you replace an FRU, make sure that the machine model and the FRU part number are correct by referring to the FRU parts list.
- **An FRU should not be replaced just because of a single, unreproducible failure.** Single failures can occur for a variety of reasons that have nothing to do with a hardware defect, such as cosmic radiation, electrostatic discharge, or software errors. Consider replacing an FRU only when a problem recurs. If you suspect that an FRU is defective, clear the error logs and run the test again. If the error does not recur, do not replace the FRU.
- **Be careful not to replace a nondefective FRU.**

What to do first

When you do return an FRU, you must include the following information in the parts exchange form or parts return form that you attach to it:

1. Name and phone number of servicer
2. Date of service
3. Date on which the machine failed
4. Date of purchase
5. Procedure index and page number in which the failing FRU was detected
6. Failing FRU name and part number
7. Machine type, model number, and serial number
8. Customer’s name and address

Note for warranty: During the warranty period, the customer may be responsible for repair costs if the computer damage was caused by misuse, accident, modification, unsuitable physical or operating environment, or improper maintenance by the customer.

The following is a list of some common items that are not covered under warranty and some symptoms that might indicate that the system was subjected to stress beyond normal use.

Before checking problems with the computer, determine whether the damage is covered under the warranty by referring to the following list:

The following are not covered under warranty:

- LCD panel cracked from the application of excessive force or from being dropped
- Scratched (cosmetic) parts
- Distortion, deformation, or discoloration of the cosmetic parts
- Plastic parts, latches, pins, or connectors that have been cracked or broken by excessive force
- Damage caused by liquid spilled into the system
- Damage caused by the improper insertion of a PC Card or the installation of an incompatible card
- Improper disc insertion or use of an optical drive
- Diskette drive damage caused by pressure on the diskette drive cover, foreign material in the drive, or the insertion of a diskette with multiple labels
- Damaged or bent diskette eject button
- Fuses blown by attachment of a nonsupported device
- Forgotten computer password (making the computer unusable)
- Sticky keys caused by spilling a liquid onto the keyboard
- Use of an incorrect AC adapter on laptop products

The following symptoms might indicate damage caused by nonwarranted activities:

- Missing parts might be a symptom of unauthorized service or modification.
- If the spindle of a hard disk drive becomes noisy, it may have been subjected to excessive force, or dropped.

Power system checkout

To verify a symptom, follow the steps below:

1. Turn off the computer.
2. Connect the AC adapter.
3. Make sure that power is supplied when you turn on the computer.
4. Turn off the computer.
5. Disconnect the AC adapter.
6. Make sure that the battery pack supplies power when you turn on the computer.

If you suspect a power problem, see the appropriate one of the following power supply checkouts:

- “Checking the AC adapter ” on page 21
- “Checking operational charging” on page 21

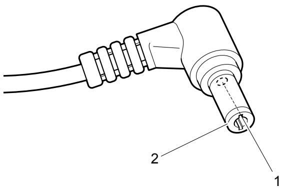
Checking the AC adapter

You are here because the computer fails only when the AC adapter is used.

- If the power-on indicator does not turn on, check the power cord of the AC adapter for correct continuity and installation.
- If the computer does not charge during operation, go to “Checking operational charging”.

To check the AC adapter, follow the steps below:

1. Unplug the AC adapter cable from the computer.
2. Measure the output voltage at the plug of the AC adapter cable. See the following figure:



Pin	Voltage (V DC)
1	+20
2	0

Note: Output voltage for the AC adapter pin No. 2 may differ from the one you are servicing.

3. If the voltage is not correct, replace the AC adapter.
4. If the voltage is acceptable, do the following:

- Replace the system board.
- If the problem continues, go to “Lenovo IdeaPad Z500/P500” on page 26.

Note: Noise from the AC adapter does not always indicate a defect.

Checking operational charging

To check whether the battery charges properly during operation, use a discharged battery pack or a battery pack that has less than 50% of the total power remaining when installed in the computer.

Perform operational charging. If the battery status indicator or icon does not light on, remove the battery pack and let it return to room temperature. Reinstall the battery pack. If the charge indicator or icon is still off, replace the battery pack.

If the charge indicator still does not light on, replace the system board. Then reinstall the battery pack.

Related service information

This chapter presents the following information:

Restoring the factory contents by using OneKey Recovery

Restore of factory default

The Lenovo IdeaPad Z500/P500 computers come with pre-installed OneKey Recovery System.In order to save application files and the initial backed up files of the system, the hard disk in a Lenovo computer includes a hidden partition when it is shipped. If you need to restore the system to the point of your first boot up, just enter Lenovo OneKey Recovery System and run **System Recovery**. For details of OneKey Recovery System, see *the User Guide for Lenovo OneKey Recovery system*.

Note: This will delete all the new data on the system partition (C drive), which is not recoverable. Make sure to back up your critical data before you perform this action.

When you use the recovery discs to boot your computer, the system will enter the user interface for system recovery automatically. Please follow the prompt to insert the backup discs to complete the whole recovery process.

Note: The recovery process might take up to 2 hours.

Passwords

As many as two passwords may be needed for any Lenovo IdeaPad computer: the power-on password (POP) and the supervisor password (SVP).

If any of these passwords has been set, a prompt for it appears on the screen whenever the computer is turned on. The computer does not start until the password is entered.

Exception: If only an SVP is installed, the password prompt does not appear when the operating system is booted.

Power-on password

A power-on password (POP) protects the system from being powered on by an unauthorized person. The password must be entered before an operating system can be booted.

Supervisor password

A supervisor password (SVP) protects the system information stored in the BIOS Setup Utility. The user must enter the SVP in order to get access to the BIOS Setup Utility and change the system configuration.

Attention: If the SVP has been forgotten and cannot be made available to the servicer, there is no service procedure to reset the password. The system board must be replaced for a scheduled fee.

Power management

Note: Power management modes are not supported for APM operating system.

To reduce power consumption, the computer has three power management modes: screen blank, sleep (standby), and hibernation.

Screen blank mode

If the time set on the “Turn off monitor” timer in the operating system expires, the LCD backlight turns off.

To end screen blank mode and resume normal operation, press any key.

Sleep (standby) mode

When the computer enters sleep (standby) mode, the following events occur in addition to what occurs in screen blank mode:
- The LCD is powered off.
- The hard disk drive is powered off.
- The CPU stops.

To enter sleep (standby) mode, To put the computer to sleep, do one of the following:
- Close the display panel.
- Press the power button.
- Open the Charms and then select **Settings** → **Power** → **Sleep**.

In certain circumstances, the computer goes into sleep (standby) mode automatically:
- If a “suspend time” has been set on the timer, and the user does not do any operation with the keyboard, the hard disk, the parallel connector, or the diskette drive within that time.
- If the battery indicator is amber, indicating that the battery power is low.

To cause the computer to return from sleep (standby) mode and resume the operation, do one of the following:
- Press the Fn key.
- Turn on the power switch.

Also, in the following event, the computer automatically returns from sleep (standby) mode and resumes the operation:
- The time set on the resume timer elapses.

Note: The computer does not accept any input immediately after it enters sleep (standby) mode. Wait a few seconds before taking any action to reenter operation mode.

Lenovo IdeaPad Z500/P500

This chapter presents the following product-specific service references and product-specific parts information:

Specifications

The following table lists the specifications of the Lenovo IdeaPad Z500/ P500 :

Table 1. Specifications

Feature	Description
Processor	• Intel Chief River platform
Core Chipset	• Intel Panther Point HM76/70
Bus architecture	• FDI 2.7GT/s DMI × 4, 4 GB/s 1600MHz DDR3 bus PCIE bus
Graphic memory chip	• Nvidia N13P-GLR/GSR
Display	• 15.6" 16:9, 1366 × 768 pixels Glossy/Anit Glare, 3.2mm slim Flat-Type
Standard memory	• DDR3-1600/1333MHz SODIMM × 2 (max 16 GB)
CMOS RAM	• 256 bytes
Hard disk drive	• 2.5-inch, 7 mm/9.5 mm SATA • 250 GB / 320 GB / 500 GB / 750 GB 5400 rpm 500 GB 5400 rpm
Optical drive	• 2.5" External 9.5mm (Rambo, blue-ray Rambo)

Table 1. Specifications (continued)

Feature	Description
I/O port	• Combo audio jack × 2 • RJ45 x 1 • HDMI port x 1 • USB 2.0 port × 2, USB 3.0 port × 1 • 2 in 1 slot × 1 (SD/MMC)
Audio	• 1/8" Combo audio jack • 2 x 2W speakers • 1 x Internal digital Microphone
Ethernet (on the system board)	• 10/100M • 100/1000M(option)
PCI Express Mini Card slot	• 2 slot
Bluetooth wireless	• Combo w/ Wifi, BT 4.0 option
Keyboard	• 6 Row, ISO Full Size Keyboard
Touch pad	• Multi-touch type
Integrated camera	• 0.3/1.0(HD) mega pixel camera
Battery	• 4 cell, 41.6 Wh or 48 Wh
AC adapter	• 20 V, 65 W or 90 W
Pre-installed operating system	• Win8 (Win8 EM, Win8 MM, Win8 PRC and Win8 Professionalt)

Status indicators

The system status indicators below show the computer status:



Table 2. Status indicators

Indicator	Indicator status	Charge Status	Meaning
Power ⏻	On (solid white)	---	The computer is powered on.
	Blinking	---	The computer is in sleep mode and is connected to the AC power adapter.
	Off	---	The computer is powered off.
Battery	On (solid white)	Charging	The battery has more than 80% charge.
		Discharging	The battery has more than 20% charge.
	On (solid amber)	Discharging	The battery has between 5% and 20% charge.
	Blinking slowly (white)	Charging	The battery has between 20% and 80% charge. When the battery reaches 80% charge, the light will stop blinking. However, charging will continue until the battery is fully charged.
	Blinking slowly (amber)	Charging	The battery has less than 20% charge. When battery charge reaches 20%, the blinking color will change to white.
	Blinking quickly (amber)	Charging/ Discharging	The battery has less than 5% charge.

Function key combinations

The following table shows the function of each combination of function key.

Table 3. Fn key combinations

Key combination	Description
Fn + PgUp:	Enables/disables the scroll lock.
Fn + PgDn:	Activates the system request.
Fn + Home:	Activates the pause function.
Fn + End:	Activates the break function.
Fn + Space (on select models):	Enables/disables the keyboard backlight.

Table 4. Hotkeys

Key	Description
F1 :	Mutes/unmutes the sound.
F2 :	Decreases the volume level.
F3 :	Increases the volume level.
F4 :	Closes the currently active window.
F5 :	Refreshes the desktop or the currently active window.
F6 :	Enables/disables the touchpad.
F7 :	Enables/disables Airplane mode.
F8 :	Displays all currently active apps.
F9 :	Turns on/off the backlight of the LCD screen.
F10 :	Toggles the display between the computer and an external device.
F11 :	Decreases display brightness.
F12 :	Increases display brightness.

FRU replacement notices

This section presents notices related to removing and replacing parts. Read this section carefully before replacing any FRU.

Screw notices

Loose screws can cause a reliability problem. In the Lenovo IdeaPad computer, this problem is addressed with special nylon-coated screws that have the following characteristics:

- They maintain tight connections.
- They do not easily come loose, even with shock or vibration.
- They are harder to tighten.
- Each one should be used only once.

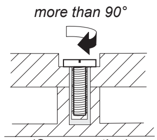
Do the following when you service this machine:

- Keep the screw kit in your tool bag.
- Always use new screws.
- Use a torque screwdriver if you have one.

Tighten screws as follows:

- **Plastic to plastic**

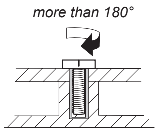
  Turn an additional 90° after the screw head touches the surface of the plastic part:

  (Cross-section)

- **Logic card to plastic**

  Turn an additional 180° after the screw head touches the surface of the logic card:

  (Cross-section)

- **Torque driver**

  If you have a torque screwdriver , refer to the “Torque” column for each step.
- Make sure that you use the correct screws. If you have a torque screwdriver, tighten all screws firmly to the torque shown in the table. **Never use a screw that you removed. Use a new one. Make sure that all screws are tightened firmly.**
- Ensure torque screwdrivers are calibrated correctly following country specifications.

Removing and replacing an FRU

This section presents exploded figures with the instructions to indicate how to remove and replace the FRU. Make sure to observe the following general rules:

1. Do not attempt to service any computer unless you have been trained and certified. An untrained person runs the risk of damaging parts.
2. Before replacing any FRU, review “FRU replacement notices” on page 30.
3. Begin by removing any FRUs that have to be removed before the failing FRU. Any of such FRUs are listed at the top of the page. Remove them in the order in which they are listed.
4. Follow the correct sequence in the steps to remove the FRU, as given in the figures by the numbers in square callouts.
5. When turning a screw to replace an FRU, turn it in the direction as given by the arrow in the figure.
6. When removing the FRU, move it in the direction as given by the arrow in the figure.
7. To put the new FRU in place, reverse the removal procedures and follow any of the notes that pertain to replacement. For information about connecting and arranging internal cables, see “Locations” on page 65.
8. When replacing an FRU, use the correct screw as shown in the procedures.

⚠ DANGER

Before removing any FRU, turn off the computer, unplug all power cords from electrical outlets, and then disconnect any of the interconnecting cables.

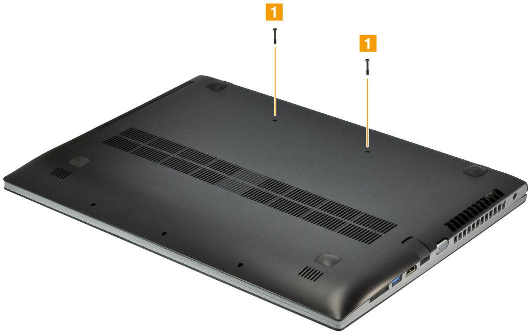
Attention: After replacing an FRU, do not turn on the computer until you have made sure that all screws, springs, and other small parts are in place and none are loose inside the computer. Verify this by shaking the computer gently and listening for rattling sounds. Metallic parts or metal flakes can cause electrical short circuits.

Attention: The system board is sensitive to, and can be damaged by, electrostatic discharge. Before touching it, establish personal grounding by touching a ground point with one hand or using an electrostatic discharge (ESD) strap (P/N 6405959) to remove potential shock reasons.

1010 Keyboard

Figure 1. Removal steps of keyboard

Remove two screws ■.



Step	Screw (quantity)	Color	Torque
■	M2 × 5 mm, flat-head, nylok-coated (2)	Black	3.62 kg-cm

Insert the screwdriver into one of the screw hole on the bottom 2. Then pull the keyboard out of the keyboard bezel 3.



Figure 1. Removal steps of keyboard (continued)

Lift the keyboard a little, and then detach the connector in the direction shown by arrows 4 5. Remove the keyboard in the direction shown by arrow 6.



When installing: Make sure that the FPC connector is attached firmly.

1020 Optical drive

For access, remove this FRU:

- “1010 Keyboard” on page 32

Figure 2. Removal steps of optical drive

Remove the screw ■.



Step	Screw (quantity)	Color	Torque
■	M2.5 × 6 mm, flat-head, nylok-coated (1)	Black	8.03 kg-cm

Figure 2. Removal steps of Optical drive (continued)

Insert a screwdriver into the screw hole and push the optical drive in the direction shown by arrow 2 . Pull the optical drive out in the direction shown by arrow 3.



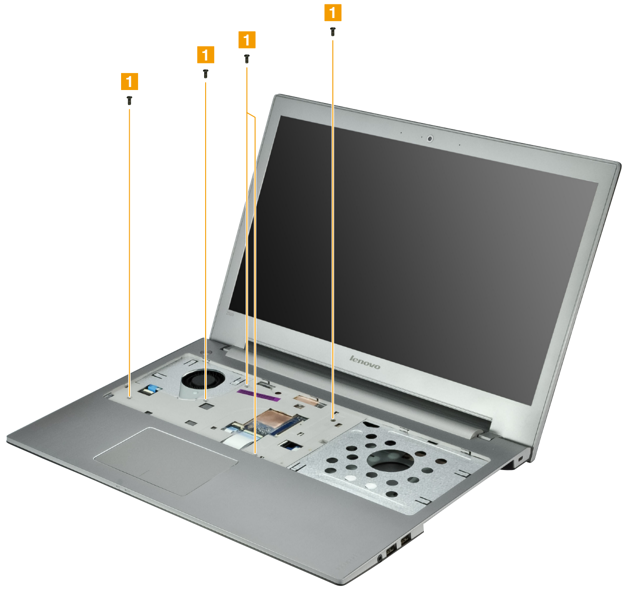
1030 Base cover

For access, remove this FRU:

- “1010 Keyboard” on page 32
- “1020 Optical drive” on page 34

Figure 3. Removal steps of base cover

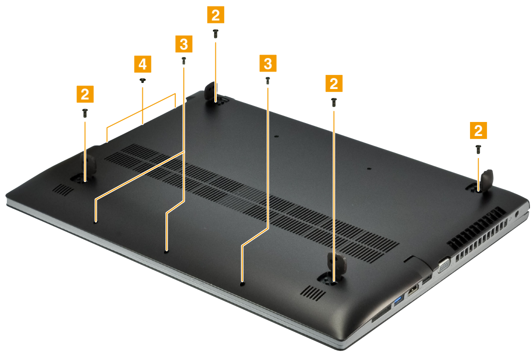
Remove the five screws ■.



Step	Screw (quantity)	Color	Torque
■	M2.5 × 6 mm, flat-head, nylok-coated (5)	Black	8.03 kg-cm

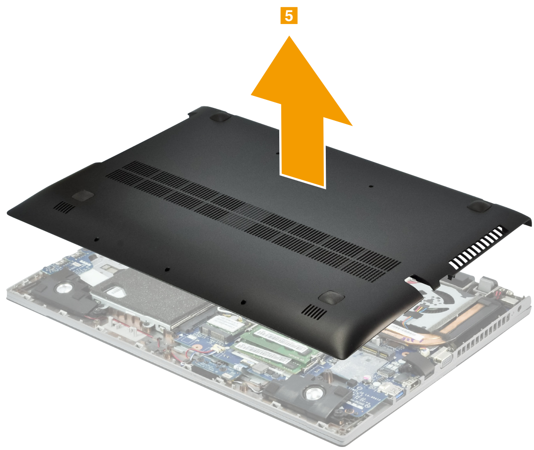
Figure 3. Removal steps of base cover (continued)

Remove four screws 2, three screws 3 and three screws 4 on the bottom.



Step	Screw (quantity)	Color	Torque
2	M2 × 6 mm, flat-head, nylok-coated (4)	Black	8.03 kg-cm
3	M2 × 5 mm, flat-head, nylok-coated (3)	Black	3.62 kg-cm
4	M2 × 2.5 mm, flat-head, nylok-coated (3)	Black	3.62 kg-cm

Remove the base cover in the direction shown by arrow 5.



Note: Applying labels to the base cover

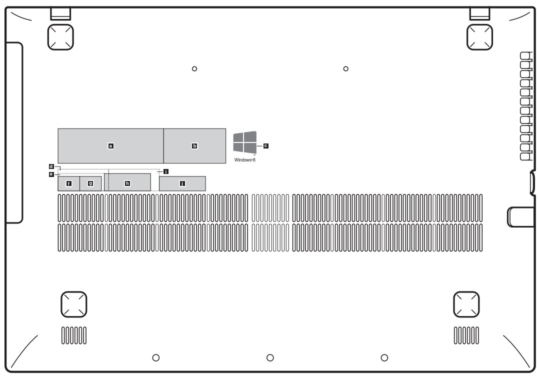
The new base cover FRU is shipped with a kit containing labels of several kinds. When you replace the base cover, you need to apply the following label:

The following labels need to be peeled off from the old base cover, and need to be put on the new base cover.

- **a** Rating Label
- **b** Back cover Label
- **c** GML Label
- **d** B/T Label (Brazil)
- **e** B/T Label (Indonesia)
- **f** SIRIM B/T Label
- **g** SIRIM W/L Label
- **h** W/L Label US/CA/TW/Indonesia
- **I** W/L Label (Brazil/Israel)
- **J** Indonesia D side Label

For some models, you also need to apply one or two FCC labels. Check the old base cover; if it has one or two FCC labels, find duplicates of them in the label kit and apply them to the new base cover.

For the location of each label, refer to the following figure:



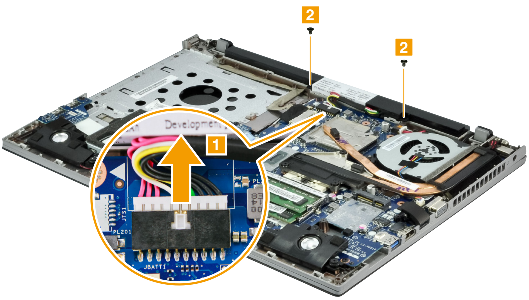
1040 Battery pack

For access, remove these FRUs in order:
- "1010 Keyboard" on page 32
- "1020 Optical drive" on page 34
- "1030 Base cover" on page 36

> ⚠ **DANGER**
> Only use the battery specified in the parts list for your computer. Any other battery could ignite or explode.

Figure 4. Removal steps of battery pack

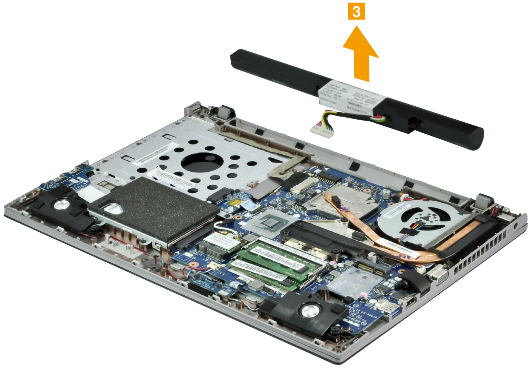
Detach the battery pack connector in the direction shown by arrow ■, remove two screws 2.



Step	Screw (quantity)	Color	Torque
2	M2.5 × 3 mm, flat-head, nylok-coated (2)	black	8.03 kg-cm

Figure 4. Removal steps of battery pack (continued)

Remove the battery pack in the direction shown by arrow 3.



When installing: Make sure the battery pack connector is attached firmly.

1050 Hard disk drive

For access, remove these FRUs in order:

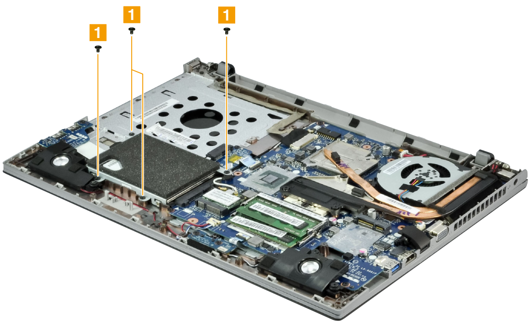
- "1010 Keyboard" on page 32
- "1020 Optical drive" on page 34
- "1030 Base cover" on page 36
- "1040 Battery pack" on page 39

Attention:

- **Do not drop the hard disk drive or apply any physical shock to it.** The hard disk drive is sensitive to physical shock. Improper handling can cause damages and permanent loss of data.
- Before removing the drive, suggest the customer to backup all the information on it if possible.
- Never remove the drive while the system is operating or is in suspend mode.

Figure 5. Removal steps of hard disk drive

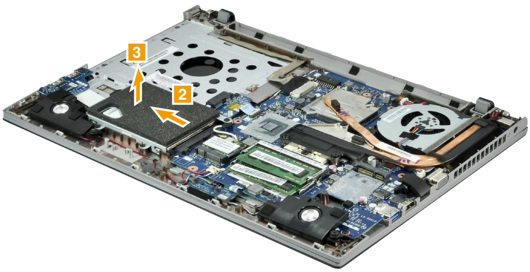
Remove the four screws ■.



Step	Screw (quantity)	Color	Torque
■	M2.5 × 3 mm, flat-head, nylok-coated (4)	Black	8.03 kg-cm

Figure 5. Removal steps of hard disk drive (continued)

Detach the HDD connector in the direction shown by arrow 2. Remove the hard disk drive from the slot in the direction shown by arrow 3.



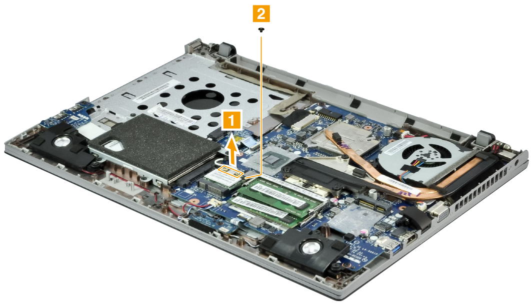
When installing: Make sure that the HDD connector is attached firmly.

1060 PCI Express Mini Card for wireless LAN

For access, remove these FRUs in order:

- “1010 Keyboard” on page 32
- “1020 Optical drive” on page 34
- “1030 Base cover” on page 36
- “1040 Battery pack” on page 39

Figure 6. Removal steps of PCI Express Mini Card for wireless LAN



Disconnect the two wireless LAN cables (black, white) ■, and then remove the screw 2.

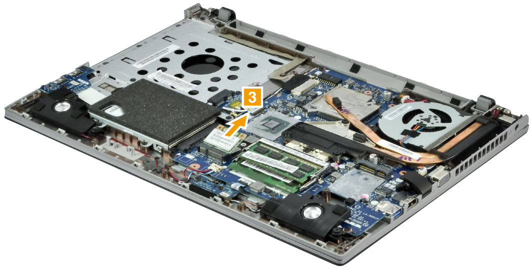
In step ■, unplug the jacks by using the removal tool antenna RF connector (P/N: 08K7159), or pick up the connectors with your fingers and gently unplug them in the direction shown by arrows.

Notes: wireless LAN card has 2 cables in step ■.
wireless LAN card in some models may have 3 cables in step ■.

Step	Screw (quantity)	Color	Torque
2	M2 × 2.5 mm, flat-head, nylok-coated (1)	Black	3.62 kg-cm

Figure 6. Removal steps of PCI Express Mini Card for wireless LAN (continued)

Remove the card in the direction shown by arrow 3.



When installing:

- In models with a wireless LAN card that has two antenna connectors, plug the black cable (1st) (MAIN) into the jack labeled **1**, and the white cable (2nd) (AUX) into jack labeled **2** on the card.
- In models with a wireless LAN card that has three antenna connectors, plug the black cable (1st) (MAIN) into the jack labeled **1**, the grey cable (3rd) into jack labeled **3**, and the white cable (2nd) (AUX) into jack labeled **2** on the card.

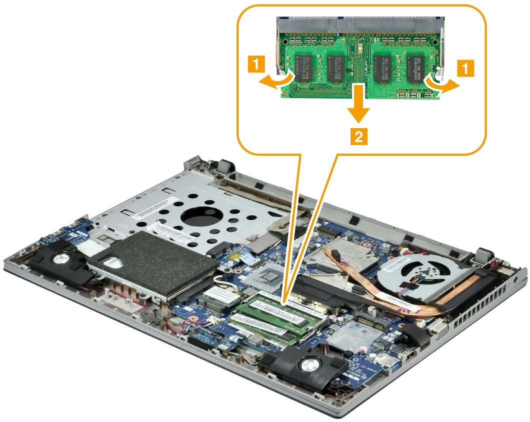
1070 DIMM

For access, remove these FRUs in order:

- “1010 Keyboard” on page 32
- “1020 Optical drive” on page 34
- “1030 Base cover” on page 36
- “1040 Battery pack” on page 39

Figure 7. Removal steps of DIMM

Release the two latches on both edges of the socket at the same time in the direction shown by arrows 1, and then unplug the DIMM in the direction shown by arrow 2.



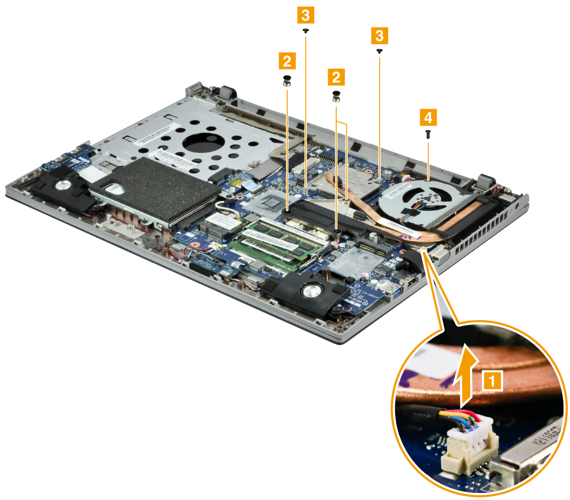
When installing: Insert the notched end of the DIMM into the socket. Push the DIMM firmly, and pivot it until it snaps into the place. Make sure that it is firmly fixed in the slot and difficult to be moved.

1080 Fan assembly and Heat Sink assembly

For access, remove these FRUs in order:
- "1010 Keyboard" on page 32
- "1020 Optical drive" on page 34
- "1030 Base cover" on page 36
- "1040 Battery pack" on page 39

Figure 8. Removal steps of fan assembly and heat sink assembly

Detach the fan connector in the direction shown by arrow ■ , and then remove three screws 2, two screws 3 and one screw 4.

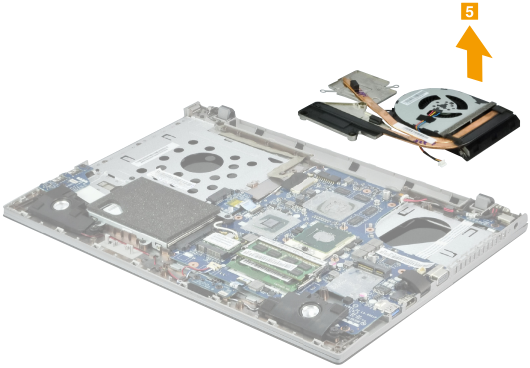


When installing: Make sure that the fan connector is attached firmly to the system board.

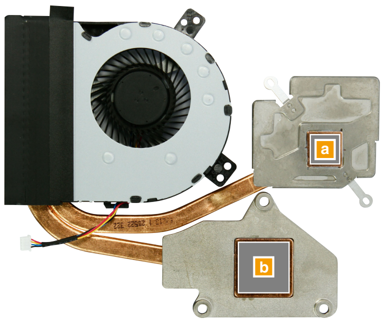
Step	Screw (quantity)	Color	Torque
2	M2 × 3.2, flat-head, nylok-coated (3)	Black	3.62 kg-cm
3	M2 × 2.5, flat-head, nylok-coated (2)	Black	3.62 kg-cm
4	M2.5 × 6, flat-head, nylok-coated (1)	Black	8.03 kg-cm

Figure 8. Removal steps of fan assembly and heat sink assembly (continued)

Lift the fan assembly and heat sink assembly in the direction shown by arrow **5**. Be careful not to damage the connector.



Attention: Do not handle the heat sink assembly roughly. Improper handling can cause distortion or deformation and imperfect contact with components.



When installing:

Before you attach the fan assembly to the computer, apply thermal grease, at an amount of 0.2 grams, to the **a** **b** part shown in the figure above. Either too much or too less grease application can cause a thermal problem due to imperfect contact with a component.

1090 CPU

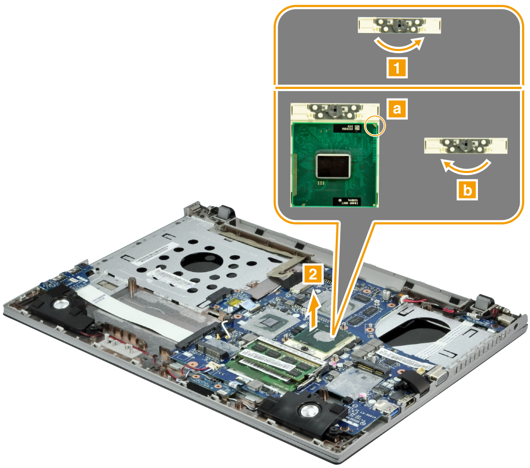
For access, remove these FRUs in order:

- “1010 Keyboard” on page 32
- “1020 Optical drive” on page 34
- “1030 Base cover” on page 36
- “1040 Battery pack” on page 39
- “1050 Hard disk drive” on page 41
- “1060 PCI Express Mini Card for wireless LAN” on page 43
- “1080 Fan assembly and Heat Sink assembly” on page 46

Attention: CPU is extremely sensitive. When you service the CPU, avoid any kind of rough handling.

Figure 9. Removal steps of CPU

Rotate the head of the screw in the direction shown by arrow ■ to release the lock, then remove the CPU in the direction shown by arrow 2.



When installing: Place the CPU on the CPU socket in the direction shown by arrow a, and then rotate the head of the screw in the direction shown by arrow b to secure the CPU.

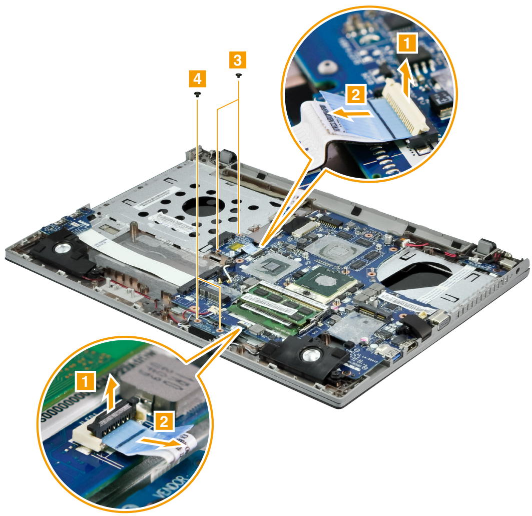
1100 ODD board and LED board

For access, remove these FRUs in order:

- “1010 Keyboard” on page 32
- “1020 Optical drive” on page 34
- “1030 Base cover” on page 36
- “1040 Battery pack” on page 39
- “1050 Hard disk drive” on page 41
- “1060 PCI Express Mini Card for wireless LAN” on page 43
- “1080 Fan assembly and Heat Sink assembly” on page 46

Figure 10. Removal steps of ODD board and LED board

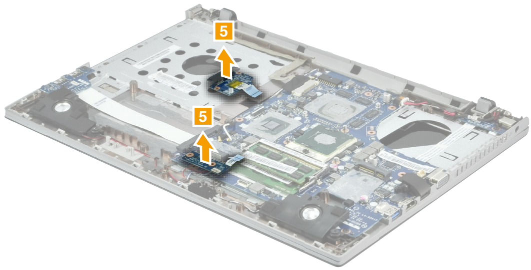
Detach the two FPC connectors in the direction shown by arrows ■ 2. Remove two screws 3 and two screws 4.



Step	Screw (quantity)	Color	Torque
3	M2 × 2.5, flat-head, nylok-coated (2)	Black	3.62 kg-cm
4	M2 × 3, flat-head, nylok-coated (2)	Black	8.03 kg-cm

Figure 10. Removal steps of ODD board and LED board (continued)

Remove the two boards in the direction shown by arrows 5.



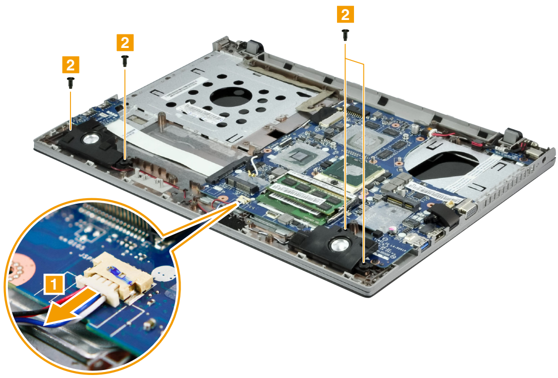
When installing: Make sure that the two FPC connectors are attached firmly.

1110 Speakers

For access, remove these FRUs in order:
- “1010 Keyboard” on page 32
- “1020 Optical drive” on page 34
- “1030 Base cover” on page 36
- “1040 Battery pack” on page 39
- “1050 Hard disk drive” on page 41
- “1060 PCI Express Mini Card for wireless LAN” on page 43
- “1080 Fan assembly and Heat Sink assembly” on page 46
- “1100 ODD board and LED board” on page 49

Figure 11. Removal steps of speakers

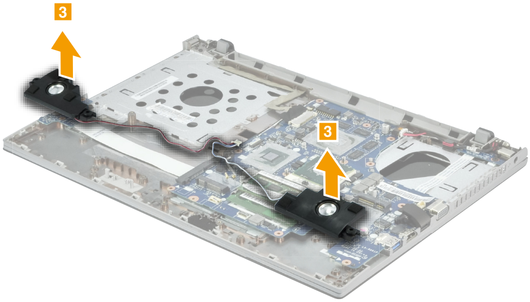
Detach the speakers connector in the direction shown by arrow ■. Remove the four screws 2.



Step	Screw (quantity)	Color	Torque
2	M2 × 5.7, flat-head, nylok-coated (4)	Black	8.03 kg-cm

Figure 11. Removal steps of speakers (continued)

Remove the speakers 3.



When installing: Make sure that the speakers connector is attached firmly.

1120 System board

Important notices for handling the system board:

When handling the system board, bear the following in mind.

- Be careful not to drop the system board on a bench top that has a hard surface, such as metal, wood, or composite.
- Avoid rough handling of any kind.
- In the whole process, make sure not to drop or stack the system board.
- If you put a system board down, make sure to put it only on a padded surface such as an ESD mat or conductive corrugated material.

For access, remove these FRUs in order:

- “1010 Keyboard” on page 32
- “1020 Optical drive” on page 34
- “1030 Base cover” on page 36
- “1040 Battery pack” on page 39
- “1050 Hard disk drive” on page 41
- “1060 PCI Express Mini Card for wireless LAN” on page 43
- “1080 Fan assembly and Heat Sink assembly” on page 46
- “1100 ODD board and LED board” on page 49
- “1110 Speakers” on page 51

Figure 12. Removal steps of system board

Detach the three FPC connectors in the direction shown by arrows 1 2.

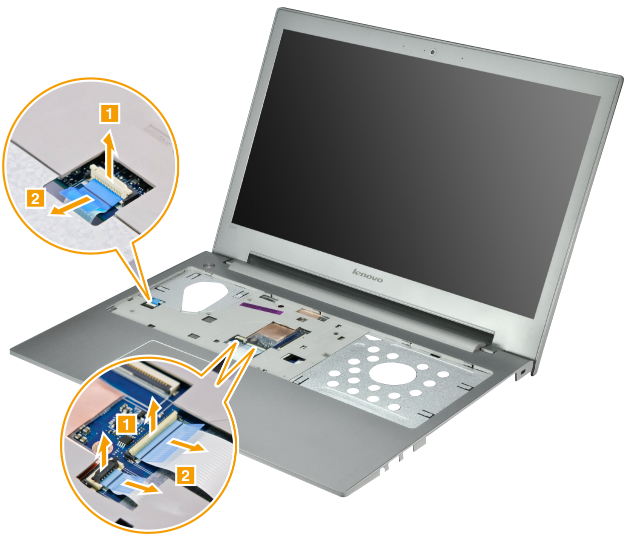
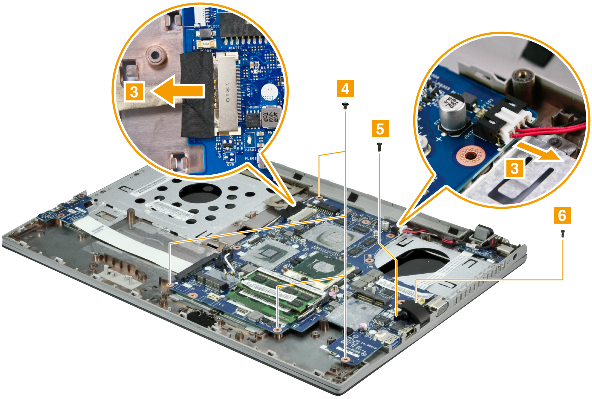


Figure 12. Removal steps of system board (continued)

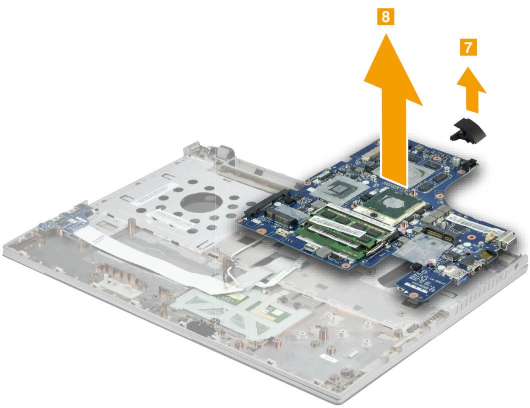
Detach the power connector and LCD connector in the direction shown by arrows 3. Remove four screws 4, one screw 5 and one screw 6.



When installing: Make sure that the power connector is attached firmly.

Step	Screw (quantity)	Color	Torque
4	M2.5 × 3 mm, flat-head, nylok-coated (4)	Black	8.03 kg-cm
5	M2.5 × 6 mm, flat-head, nylok-coated (1)	Black	8.03 kg-cm
6	M2.5 × 3 mm, flat-head, nylok-coated (1)	Black	3.62 kg-cm

Remove the RJ-45 door in the direction shown by arrow 7. Remove the system board in the direction shown by arrow 8.



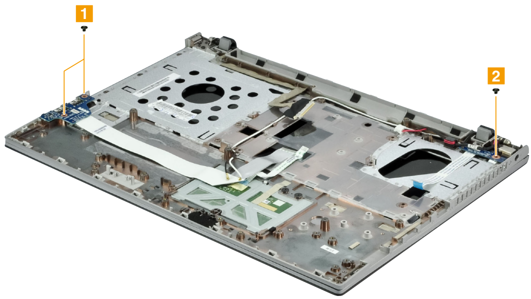
1130 Keyboard bezel

For access, remove these FRUs in order:

- “1010 Keyboard” on page 32
- “1020 Optical drive” on page 34
- “1030 Base cover” on page 36
- “1040 Battery pack” on page 39
- “1050 Hard disk drive” on page 41
- “1060 PCI Express Mini Card for wireless LAN” on page 43
- “1070 DIMM” on page 45
- “1080 Fan assembly and Heat Sink assembly” on page 46
- “1100 ODD board and LED board” on page 49
- “1110 Speakers” on page 51
- “1120 System board” on page 53

Figure 13. Removal steps of keyboard bezel

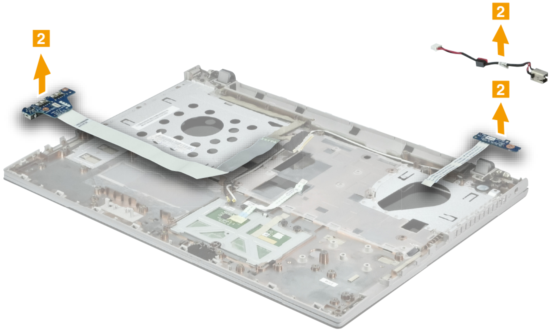
Remove the two screws ■ and one screw 2.



Step	Screw (quantity)	Color	Torque
■	M2.5 × 3 mm, flat-head, nylok-coated (2)	Black	8.03 kg-cm
2	M2.5 × 6 mm, flat-head, nylok-coated (1)	Black	8.03 kg-cm

Figure 13. Removal steps of keyboard bezel (continued)

Remove the power board, USB board and DC-in jack in the direction shown by arrows 2.



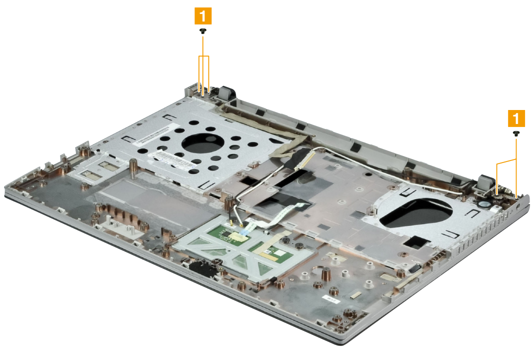
1140 LCD unit

For access, remove these FRUs in order:

- "1010 Keyboard" on page 32
- "1020 Optical drive" on page 34
- "1030 Base cover" on page 36
- "1040 Battery pack" on page 39
- "1050 Hard disk drive" on page 41
- "1060 PCI Express Mini Card for wireless LAN" on page 43
- "1070 DIMM" on page 45
- "1080 Fan assembly and Heat Sink assembly" on page 46
- "1100 ODD board and LED board" on page 49
- "1110 Speakers" on page 51
- "1120 System board" on page 53
- "1130 Keyboard bezel" on page 55

Figure 14. Removal steps of LCD unit

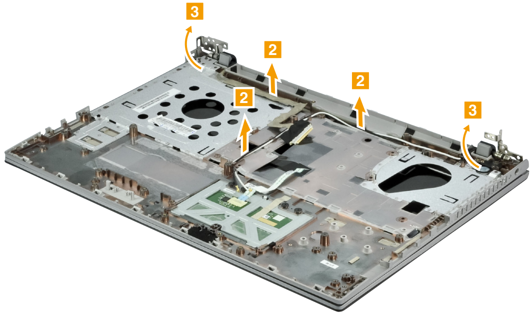
Remove the five screws ■.



Step	Screw (quantity)	Color	Torque
■	M2.5 × 6 mm, flat-head, nylok-coated (5)	Black	8.03 kg-cm

Figure 14. Removal steps of LCD unit (continued)

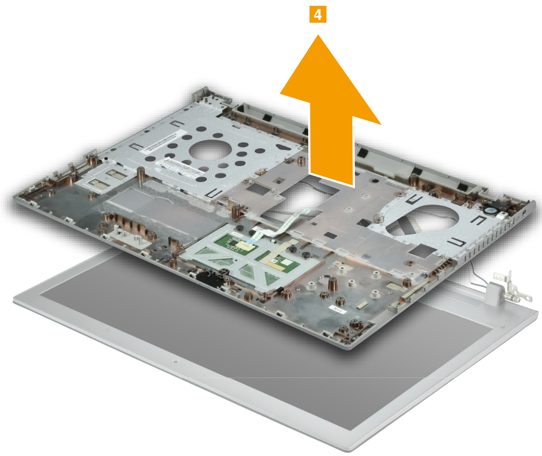
Release the LCD cable from the cable guides in the direction shown by arrows **2**. Then lift the LCD hinge in the direction shown by arrow **3**.



When installing:

- Route the antenna cables along the cable guides. As you route the cables, make sure that they are not subjected to any tension. Tension could cause the cables to be damaged by the cable guides, or a wire to be broken.
- Make sure that the LCD connector is attached firmly and make sure that you do not pinch the antenna cables when you attach the LCD assembly. Route the LCD cable along the cable guides.

Remove the keyboard bezel from the LCD unit in the direction shown by arrows **4**.



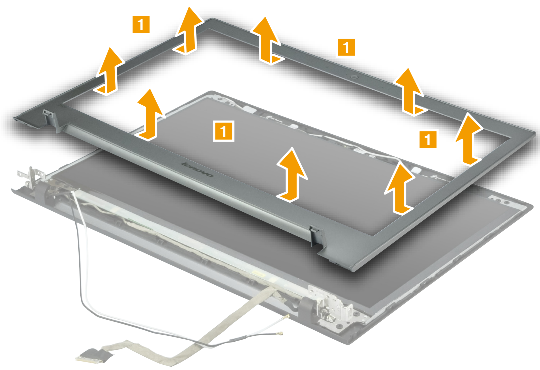
1150 LCD front bezel

For access, remove these FRUs in order:

- “1010 Keyboard” on page 32
- “1020 Optical drive” on page 34
- “1030 Base cover” on page 36
- “1040 Battery pack” on page 39
- “1050 Hard disk drive” on page 41
- “1060 PCI Express Mini Card for wireless LAN” on page 43
- “1070 DIMM” on page 45
- “1080 Fan assembly and Heat Sink assembly” on page 46
- “1100 ODD board and LED board” on page 49
- “1110 Speakers” on page 51
- “1120 System board” on page 53
- “1130 Keyboard bezel” on page 55
- “1140 LCD unit” on page 57

Figure 15. Removal steps of LCD front bezel

Remove the LCD front bezel in the direction shown by arrows ■.



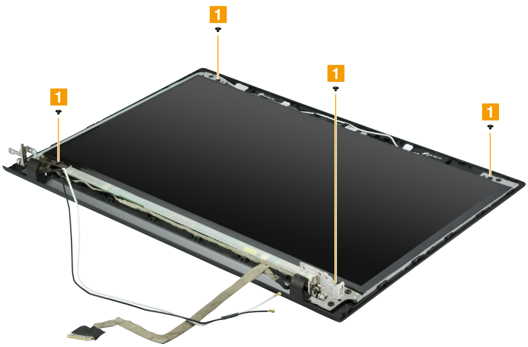
1160 LCD panel and hinges

For access, remove these FRUs in order:

- “1010 Keyboard” on page 32
- “1020 Optical drive” on page 34
- “1030 Base cover” on page 36
- “1040 Battery pack” on page 39
- “1050 Hard disk drive” on page 41
- “1060 PCI Express Mini Card for wireless LAN” on page 43
- “1070 DIMM” on page 45
- “1080 Fan assembly and Heat Sink assembly” on page 46
- “1100 ODD board and LED board” on page 49
- “1110 Speakers” on page 51
- “1120 System board” on page 53
- “1130 Keyboard bezel” on page 55
- “1140 LCD unit” on page 57
- “1150 LCD front bezel” on page 59

Figure 16. Removal steps of LCD panel and hinges

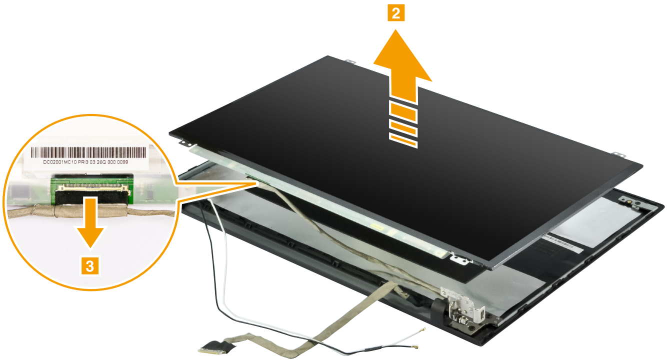
Remove the four screws ■.



Step	Screw (quantity)	Color	Torque
■	M2 × 2.5 mm, flat-head, nylok-coated (4)	Black	3.62 kg-cm

Figure 16. Removal steps of LCD panel and hinges (continued)

Lift the LCD panel a little 2. Peel off the adhesive tape and detach the connector in the direction shown by arrow 3.



When installing: Make sure that the metal connector is attached firmly.

Remove the LCD panel 4.

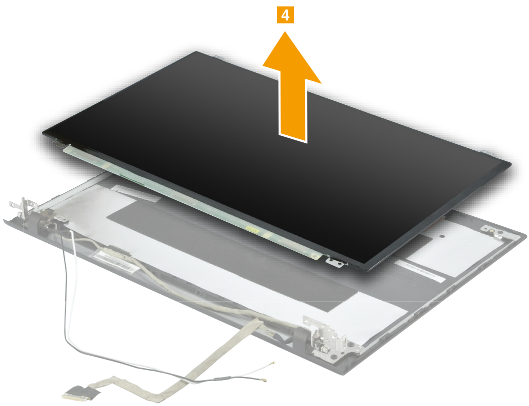
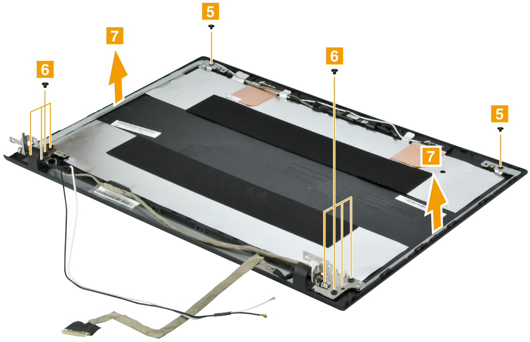


Figure 16. Removal steps of LCD panel and hinges (continued)

Remove the two screws 5 and the eight screws 6. Then release the two hinges in the direction shown by arrows 7.



Step	Screw (quantity)	Color	Torque
5	M2 × 2.5 mm, flat-head, nylok-coated (2)	Black	3.62 kg-cm
6	M2 × 3 mm, flat-head, nylok-coated (8)	Black	8.03 kg-cm

1170 Integrated camera, LCD cable and antenna assembly

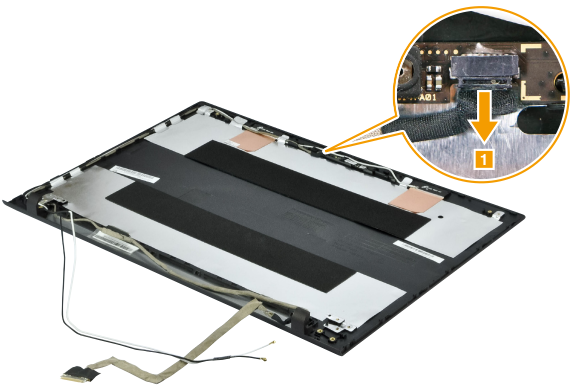
For access, remove these FRUs in order:

- “1010 Keyboard” on page 32
- “1020 Optical drive” on page 34
- “1030 Base cover” on page 36
- “1040 Battery pack” on page 39
- “1050 Hard disk drive” on page 41
- “1060 PCI Express Mini Card for wireless LAN” on page 43
- “1070 DIMM” on page 45
- “1080 Fan assembly and Heat Sink assembly” on page 46
- “1100 ODD board and LED board” on page 49
- “1110 Speakers” on page 51
- “1120 System board” on page 53
- “1130 Keyboard bezel” on page 55
- “1140 LCD unit” on page 57
- “1150 LCD front bezel” on page 59
- “1160 LCD panel and hinges” on page 60

Figure 17. Removal steps of integrated camera, LCD cable and antenna assembly

Note: The integrated camera is stuck on the top center of the LCD cover.

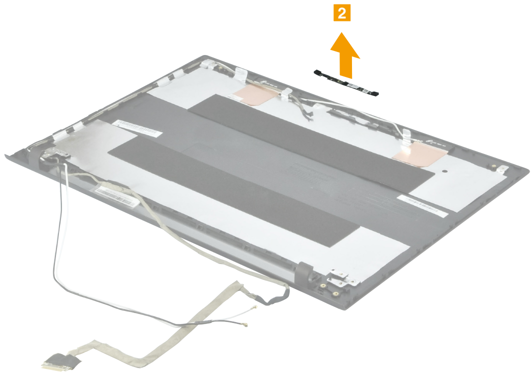
Detach the integrated camera connector in the direction shown by arow ■.



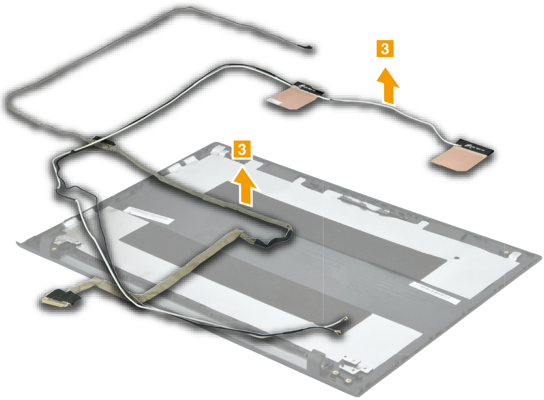
When installing: Stick the integrated camera to the top center of the LCD cover and ajust the placement of it to make sure the connector is attached firmly.

Figure 17. Removal steps of integrated camera, LCD cable and antenna assembly (continued)

Remove the camera in the direction shown by arrow **2**.



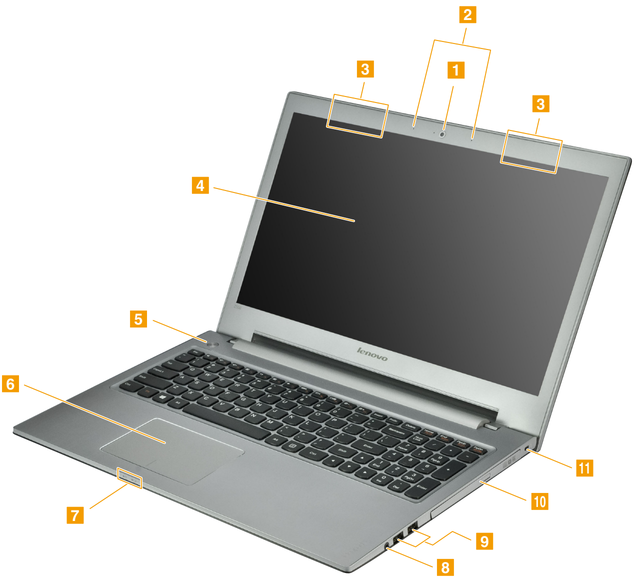
Remove the LCD cable and antenna assembly in the direction shown by arrow **3**.



Locations

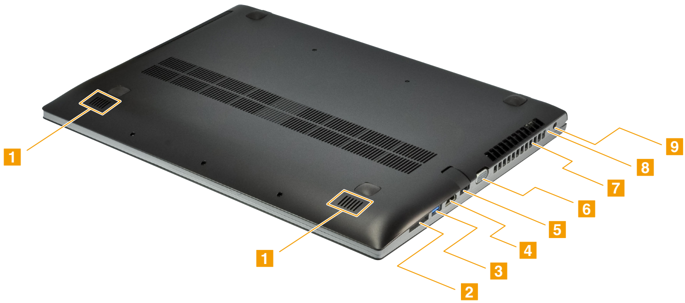
Front view and right-side view

1 Integrated camera
2 Built-in microphone
3 Wireless LAN antennas
4 Computer display
5 Power button
6 Touchpad
7 System status indicators
Note: For the description of each indicator, see “Status indicators” on page 28.
8 Combo audio jack
9 USB port
10 Optical drive
11 Kensington slot



Bottom and Left-side view

1 Speakers
2 Memory card slot
3 USB port
4 HDMI port
5 RJ-45 port
6 VGA port
7 Fan louvers
8 Novo button
9 AC power adapter jack



Parts list

This section presents the following service parts:

Notes:

- Each FRU is available for all types or models, unless specific types or models are specified.

Overall

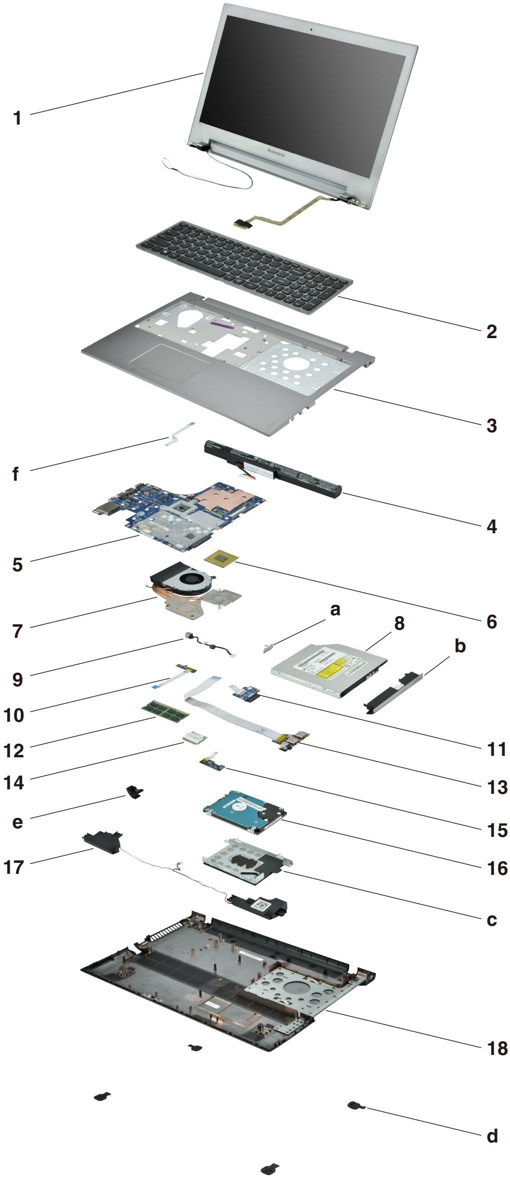


Table 5. Parts list—Overall

No.	FRU	FRU no.	CRU ID.
a-f	See “Miscellaneous parts” on page 80.		
1	LCD unit (see “LCD FRUs” on page 72.)		
2	Keyboard (see “Keyboard” on page 75.)		
3	VIWZ2 Upper Case	90202121	N
4	Battery, 4S1P, 4cell,48Wh, sanyo, Z400Z500 SY L12S4K01 14.4V48Wh 4cellbty	121500113	
4	Battery, 4S1P, 4cell,48Wh, LG, Z400Z500 LG L12L4K01 15V48Wh 4cellbty	121500112	
4	Battery, 4S1P, 4cell,48Wh, simplo, Z400Z500SP/S L12M4K01 15.12V48Wh4cellbty	121500114	
4	Battery, 4S1P, 4cell, 41.6Wh, Sanyo, Zx0 SY L12S4E21 14.4V41.6Wh 4cellbty	121500121	
4	Battery, 4S1P, 4cell, 41.6Wh, Simplo, Zx0 SP/L L12M4E21 14.8V41.6Wh 4cellbty	121500123	
5	VIWZ2 MB UMA WO/BL	90001763	
5	VIWZ2 MB GLR 2G BL	90001764	
5	VIWZ2 MB W8P UMA WO/BL	90001765	
5	VIWZ2 MB W8P GLR 2G BL	90001766	
5	VIWZ2 MB W8 UMA WO/BL	90001767	
5	VIWZ2 MB W8 GLR 2G BL	90001768	
6	Platform, Chief River platform 35w, Intel I7-3632QM 2.2G E1 6M 4cPGA processor	102500437	
6	Platform, Chief River platform 35w, Intel I7-3612QM 2.1G E1 6M 4cPGA processor	102500290	
6	Platform, Chief River platform 35w, Intel I7-3520M 2.9G L1 4M 2cPGA processor	102500295	
6	Platform, Chief River platform 35w, Intel I5-3360M 2.8G L1 3M 2cPGA processor	102500297	
6	Platform, Chief River platform 35w, Intel I5-3320M 2.6G L1 3M 2cPGA processor	102500299	
6	Platform, Chief River platform 35w, Intel I5-3210M 2.5G L1 3M 2cPGA processor	102500301	
6	Platform, Chief River platform 35w, Intel I3-3120M 2.5G L1 3M 2cPGA processor	102500435	
6	Platform, Chief River platform 35w, Intel I3-3110M 2.4G L1 3M 2cPGA processor	102500303	
6	Platform, Huron River 35W, Intel I3-2328M 2.2G J1 3M 2cPGA processor	102500421	
6	Platform, Huron River 35W, Intel I3-2370M 2.4G J1 3M 2cPGA processor	102500228	
6	Platform, Huron River 35W, Intel SNB I3-2350M 2.3G 3M J1 PGA processor	102500018	
6	Platform, Huron River 35W, Intel SNB B950 2.1G 2M Q0 PGA processor	102500016	
6	Platform, Huron River 35W, Intel SNB B840 1.90G Q0 2M 2c PGA processor	102500102	
6	Platform, Huron River 35W, Intel B960 2.20G 2M 35W SNB PGA processor	102500133	

Table 5. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID.
6	Platform, Huron River 35W, Intel B980 2.4G Q0 2M 2cPGA QS processor	102500362	N
7	VIWZ2 HeatSink GLR	90202124	
7	VIWZ2 HeatSink GSR	90202125	
7	VIWZ2 HeatSink UMA	90202126	
7	VIWZ2 Fan	90202127	
8	Optical Disk Driver, 9.5mm Tray in Rambo, HLDS GU70N Slim Tray DVD Rambo ODD	25205807	
8	Optical Disk Driver, 9.5mm Tray in Rambo, PSN UJ8B2 Slim Tray DVD Rambo ODD	25204157	
8	Optical Disk Driver, 9.5mm Tray in Rambo, Optiarc AD-7940H Slim Tray DVD Rambo ODD	25204156	
8	Optical Disk Driver, 9.5mm Tray in Rambo, PLDS DU-8A5SH Slim Tray DVD Rambo ODD	25205806	
8	Optical Disk Driver, 9.5mm Tray in BD Rambo, PSN UJ262 9.5mm Tray in BD Rambo	25209259	
8	Optical Disk Driver, 9.5mm Tray in BD Rambo, HLDS BU10N 9.5mm Tray in BD Rambo	25209260	
9	VIWZ2 DC-IN Cable	90202118	
10	VIWZ2 Power Board W/Cable	90001771	
11	VIWZ2 ODD Board W/Cable BD	90001772	
11	VIWZ2 ODD Board W/Cable	90001773	
12	DDR3 1600 2GB, Samsung, M471B5773DH0-CK0	11200340	
12	DDR3 1600 2GB, Hynix, HMT325S6CFR8C-PB	11200343	
12	DDR3 1600 2GB, Ramaxel, RMT3150ED58E8W-1600	11200392	
12	DDR3 1600 2GB, Sharetronic(Powerchip), SP321NH08IAF	11200394	
12	DDR3 1600 2GB, Nanya, NT2GC64B88G0NS-DI	11201041	
12	DDR3 1600 4GB, Samsung, M471B5273DH0-CK0	11200341	
12	DDR3 1600 4GB, Ramaxel, RMT3160ED58E9W-1600	11200393	
12	DDR3 1600 4GB, Hynix, HMT351S6CFR8C-PB	11200344	
12	DDR3 1600 4GB, Sharetronic(Powerchip), SP322NQ08IAF	11200395	
12	DDR3 1600 4GB, Nanya, NT4GC64B8HG0NS-DI	11201042	
12	DDR3 1600 8GB, Samsung, M471B1G73BH0-CK0	11200342	
12	DDR3 1600 8GB, HynixHMT41GS6MFR8C-PB	11200345	
13	VIWZ2 USB Board W/Cable	90001775	
14	Wlan, WiFi 2x2 BGN+BT4.0, Intel 2230 BGN+BT M PCIE HMC	20200078	
14	Wlan, WiFi 1x1 BGN, Cbt BCM94313HMG 1x1BGN HMC	20200102	
14	Wlan, WiFi 1x1 BGN, Liteon HB125 1x1BGN HMC	20200223	
14	Wlan, WiFi 1x1 BGN+BT4.0, Cbt BCM943142HM 1x1BGN+BT4.0 HMC	20200222	
14	Wlan, WiFi 1x1 BGN+BT4.0, Liteon WB225 1x1BGN+BT4.0 HMC	20200224	
15	VIWZ2 LED Board W/Cable	90001774	

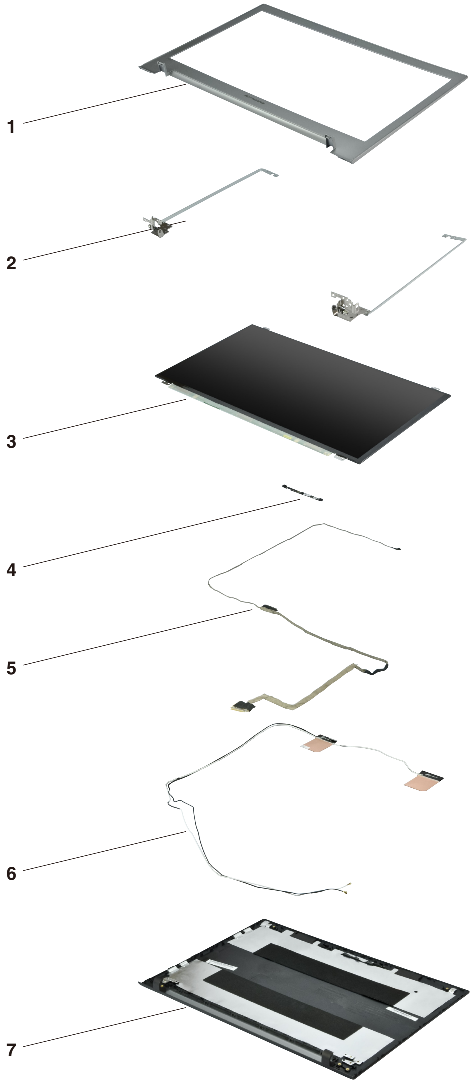
Table 5. Parts list—Overall (continued)

No.	FRU	FRU no.	CRU ID.
16	Hard disk drive, 500G 5400rpm, Samsung M8, ST500LM012 5.4K RPM 9.5mm 500G	16200210	N
16	Hard disk drive, 500G 5400rpm, WD (MN500S), WD5000LPVT-08G33T1 7mm 5.4K rpm 500G HDD	16200264	
16	Hard disk drive, 500G 5400rpm, HGST (Jaquar B7 -RV), HGST HTS545050A7E380 RV 5400PRM7mm 500G HDD	16200297	
16	Hard disk drive, 500G 5400rpm, Seagate Yarra, ST500LT012 5.4K 7mm 500G HDD	16200211	
16	Hard disk drive, 750G 5400rpm, Samsung M8, ST750LM022 5.4K RPM 9.5mm 750G	16200209	
16	Hard disk drive, 750G 5400rpm, HGST Jaquar B, HTS541075A9E680 9.5 5.4K 750G HDD	16200192	
16	Hard disk drive, 750G 5400rpm, WD(ML375M), WD7500BPVT-24HXZ 5400RPM 750G HDD	16004848	
16	Hard disk drive, 1TB 5400rpm, Samsung M8, ST1000LM024 5.4K RPM 9.5mm 1T	16200208	
16	Hard disk drive, 1TB 5400rpm, WD ML500M, WD WD10JPVT-24A1YT0 5400PRM 9.5mm 1T HDD	16200071	
16	Hard disk drive, 1TB 5400rpm, HGST Jaquar B, HTS541010A9E680 9.5 5.4K 1T HDD	16200193	
16	Hard disk drive, 500G 7200rpm, HGST Jaquar C7 -RV, HTS725050A7E630-RV 7mm 7.2K 500G HDD	16200306	
16	Hard disk drive, 500G 7200rpm, Toshiba Capricorn CS, TSB MK5061GSY 7200PRM 9.5mm 500G HDD	16200086	
16	Hard disk drive, 500G 7200rpm, WD MX375M, WD WD5000BPKT 7200RPM 500G	16200004	
17	VIWZ2 Speaker L+R	90202135	
18	VIWZ2 Lower Case White	90202120	
—	AC adapter (see “AC adapters” on page 81).		

LCD FRUs

In Lenovo IdeaPad Z500/P500, there are following types of LCDs.

- “15.6-in. HD TFT”



15.6-in. HD TFT

Table 6. Parts list—15.6-in. HD TFT

No.	FRU	FRU no.	CRU ID.
1	VIWZ2 LCD Bezel	90202123	N
2	VIWZ2 LCD Bracket L+R	90202136	
3	Panel, HD-AG, AUO B156XTN03.4 HW0A HD AG S LED1 NB LCD	18200763	
3	Panel, HD-AG, CMI N156BGE-LA1 HD AG S LED1 NB LCD	18200764	
3	Panel, HD-AG, BOE HB156WX1-600 HD AG S LED1 NB LCD	18200765	
3	Panel, HD-AG, SDC 156AT29-401 HD AG S LED1 NB LCD	18200706	
3	Panel, HD-AG, LGD LP156WHU-TLB1 HD AG S LED1 NB LCD	18200766	
3	Panel, HD -G, AUO B156XTN03.2 HD G S LED1 NB LCD	18200449	
3	Panel, HD -G, CMI N156BGE-LB1 HD G S LED1 NB LCD	18200450	
3	Panel, HD -G, BOE HB156WX1-500 HD G S LED1 NB LCD	18200767	
3	Panel, HD -G, SDC 156AT29-L01 HD G S LED1 NB LCD	18200705	
3	Panel, HD -G, LGD LP156WHU-TLA1 HD G S LED1 NB LCD	18200768	
4	Camera, HD(For Z500&P500), BIS BN6R18VVQ HD NB camera	73042534	
4	Camera, HD(For Z500&P500), CCY CKFC113 HD NB camera	73042535	
4	Camera, HD(For Z500&P500), AWA AM-1H047 HD NB camera	73042536	
4	Camera, HD(For Z500&P500), AVC HAA-543401 HD NB camera	73042537	
4	Camera, HD(For P500), BIS BN6R18VVQ HD NB camera 61dB	73044054	
4	Camera, HD(For P500), AWA AM-1H047 HD NB camera 61dB	73044056	
4	Camera, HD(For P500), AVC HAA-543401 HD NB camera lens	73044057	
4	Camera, 0.3M(For Z500&P500), BIS BN6RVTYTD 0.3M NB camera	73042538	
4	Camera, 0.3M(For Z500&P500), CCY CNFC015 0.3M NB camera	73042539	
4	Camera, 0.3M(For Z500&P500), AWA AM-VS058 0.3M NB camera	73042540	
4	Camera, 0.3M(For Z500&P500), AVC HAA-586605 0.3M NB camera	73042541	
4	Camera, 0.3M(For P500), BIS BN6RVTYTD 0.3M NB camera 61dB	73044058	

Table 6. Parts list—15.6-in. HD TFT (continued)

No.	FRU	FRU no.	CRU ID.
4	Camera, 0.3M(For P500), AWA AM-VS058 0.3M NB camera 61dB	73044060	N
4	Camera, 0.3M(For P500), AVC HAA-586605 0.3M NB camera	73042541	
5	VIWZ2 LCD Cable	90202117	
6	VIWZ2 Antenna*2	90202137	
7	VIWZ2 LCD Cover White	90202122	

Keyboard

Table 7. Parts list—Keyboard

Language			P/N	CRU ID.
Z500	Chicony	Arabic	25209261	N
		Belgian	25209262	
		Brazilian	25209263	
		Bulgarian	25209264	
		Canadian Bilingual (En+Fr)	25209265	
		Czech&Slovak	25209266	
		Dutch	25209267	
		French	25209268	
		German	25209269	
		Greek	25209270	
		Hebrew	25209271	
		Hungarian	25209272	
		Icelandic	25209273	
		Indic	25209274	
		Italian	25209275	
		Japanese	25209276	
		Korean	25209277	
		Latin	25209278	
		Nordic	25209279	
		Portuguese	25209280	
		Russian	25209281	
		Slovenian	25209282	
		Spanish	25209283	
		Swiss	25209284	
		Traditional Chinese	25209285	
		Thai	25209286	
		Turkish	25209287	
		U.K. English	25209288	
		English	25209289	
		US international	25209290	
	Darfon	Arabic	25206389	
		Belgian	25206390	
		Brazilian	25206391	
		Bulgarian	25206392	
		Canadian Bilingual (En+Fr)	25206393	
		Czech&Slovak	25206394	
		Dutch	25206395	
		French	25206396	
		German	25206397	
		Greek	25206398	
		Hebrew	25206399	
		Hungarian	25206400	
		Icelandic	25206401	
		Indic	25206402	
		Italian	25206403	

Table 7. Parts list—Keyboard (continued)

Language			P/N	CRU ID.
Z500 *(continued)*	Darfon *(continued)*	Japanese	25206404	N
		Korean	25206405	
		Latin	25206406	
		Nordic	25206407	
		Portuguese	25206408	
		Russian	25206409	
		Slovenian	25206410	
		Spanish	25206411	
		Swiss	25206412	
		Traditional Chinese	25206413	
		Thai	25206414	
		Turkish	25206415	
		U.K. English	25206416	
		English	25206417	
		US international	25206418	
	Darfon (with backlight)	Arabic	25206419	
		Belgian	25206420	
		Brazilian	25206421	
		Bulgarian	25206422	
		Canadian Bilingual (En+Fr)	25206423	
		Czech&Slovak	25206424	
		Dutch	25206425	
		French	25206426	
		German	25206427	
		Greek	25206428	
		Hebrew	25206429	
		Hungarian	25206430	
		Icelandic	25206431	
		Indic	25206432	
		Italian	25206433	
		Japanese	25206434	
		Korean	25206435	
		Latin	25206436	
		Nordic	25206437	
		Portuguese	25206438	
		Russian	25206439	
		Slovenian	25206440	
		Spanish	25206441	
		Swiss	25206442	
		Traditional Chinese	25206443	
		Thai	25206444	
		Turkish	25206445	
		U.K. English	25206446	
		English	25206447	
		US international	25206448	

Table 7. Parts list—Keyboard (continued)

Language			P/N	CRU ID.
Z500 *(continued)*	OKI (with backlight)	Arabic	25206479	N
		Belgian	25206480	
		Brazilian	25206481	
		Bulgarian	25206482	
		Canadian Bilingual (En+Fr)	25206483	
		Czech&Slovak	25206484	
		Dutch	25206485	
		French	25206486	
		German	25206487	
		Greek	25206488	
		Hebrew	25206489	
		Hungarian	25206490	
		Icelandic	25206491	
		Indic	25206492	
		Italian	25206493	
		Korean	25206495	
		Latin	25206496	
		Nordic	25206497	
		Portuguese	25206498	
		Russian	25206499	
		Slovenian	25206500	
		Spanish	25206501	
		Swiss	25206502	
		Traditional Chinese	25206503	
		Thai	25206504	
		Turkish	25206505	
		U.K. English	25206506	
		English	25206507	
		US international	25206508	
	Sunrex	Arabic	25206509	
		Belgian	25206510	
		Brazilian	25206511	
		Bulgarian	25206512	
		Canadian Bilingual (En+Fr)	25206513	
		Czech&Slovak	25206514	
		Dutch	25206515	
		French	25206516	
		German	25206517	
		Greek	25206518	
		Hebrew	25206519	
		Hungarian	25206520	
		Icelandic	25206521	
		Indic	25206522	
		Italian	25206523	
		Korean	25206525	
		Latin	25206526	

Table 7. Parts list—Keyboard (continued)

Language			P/N	CRU ID.
Z500 *(continued)*	Sunrex *(continued)*	Nordic	25206527	N
		Portuguese	25206528	
		Russian	25206529	
		Slovenian	25206530	
		Spanish	25206531	
		Swiss	25206532	
		Traditional Chinese	25206533	
		Thai	25206534	
		Turkish	25206535	
		U.K. English	25206536	
		English	25206537	
		US international	25206538	
	Sunrex (with backlight)	Arabic	25206539	
		Belgian	25206540	
		Brazilian	25206541	
		Bulgarian	25206542	
		Canadian Bilingual (En+Fr)	25206543	
		Czech&Slovak	25206544	
		Dutch	25206545	
		French	25206546	
		German	25206547	
		Greek	25206548	
		Hebrew	25206549	
		Hungarian	25206550	
		Icelandic	25206551	
		Indic	25206552	
		Italian	25206553	
		Korean	25206555	
		Latin	25206556	
		Nordic	25206557	
		Portuguese	25206558	
		Russian	25206559	
		Slovenian	25206560	
		Spanish	25206561	
		Swiss	25206562	
		Traditional Chinese	25206563	
		Thai	25206564	
		Turkish	25206565	
		U.K. English	25206566	
		English	25206567	
		US international	25206568	

Table 7. Parts list—Keyboard (continued)

Language			P/N	CRU ID.
P500	Darfon	Canadian Bilingual (En+Fr)	25206213	N
		English	25206237	
	Darfon (with backlight)	Canadian Bilingual (En+Fr)	25206243	
		English	25206267	
	Chicony	Canadian Bilingual (En+Fr)	25206273	
		English	25206297	
	OKI (with backlight)	Canadian Bilingual (En+Fr)	25206303	
		English	25206327	
	Sunrex	Canadian Bilingual (En+Fr)	25206333	
		English	25206357	
	Sunrex (with backlight)	Canadian Bilingual (En+Fr)	25206363	
		English	25206387	

Miscellaneous parts

Table 8. Parts list—Miscellaneous parts

FRU	P/N	CRU ID.
System miscellaneous parts:		
• (*a*) VIWZ2 ODD Bracket	90202132	
• (*b*) VIWZ2 ODD Bezel White Rambol	90202130	
• (*b*) VIWZ2 ODD Bezel White BD	90202131	
• (*c*) VIWZ2 HDD Bracket	90202133	
• (*d*) VIWZ2 Rubber Foot Front White	90202128	
• (*d*) VIWZ2 Rubber Foot Rear White	90202129	N
• (*e*) VIWZ2 RJ-45 Door White	90202134	
Cable miscellaneous parts:		
• (*f*) VIWZ2 TP Cable	90202119	
Note: Italicized letters in parentheses are references to the exploded view in “Overall” on page 68 .		

AC adapters

Table 9. Parts list—3-pin AC adapters

FRU	P/N	CRU ID.
65W, Delta ADP-65KH BD 20V/3.25A Adapter	36001929	*
65W, Liteon PA-1650-56LC Adapter	36001651	
65W, Brazil PA-1650-52LB Adapter (Brazil)	36001714	
65W, Delta ADP-65KH B 20V,3.25A Adapter (Brazil)	36002066	
65W, Chicony CPA-A065 20V3.25A Adapter(330PF)	36001943	
90W, Delta ADP-90DD BD 20V4.5A Adapter	36001941	
90W, Liteon PA-1900-56LC 20V4.5A Adapter(330PF)	36001927	
90W, Chicony CPA-A090 20V4.5A Adapter(330PF)	36001942	

Power cords

A Lenovo IdeaPad power cord for a specific country or region is usually available only in that country or region:

Table 10. Parts list—3-pin power cords

Region	P/N	CRU ID.
CCC • LINETEK PC323+RVV300/300+LS15 1m	145000600	*
Argentina • LINETEK LS15+H03VV-F+LP39 1m	145000599	
Danmark • LINETEK LS15+H03VV-F+LP-38 1m	145000598	
Switzerland • LINETEK LS15+H03VV-F+LP-37 1m	145000597	
Brazil • LINETEK LS15 H03VV-F LP26A 1m	145000596	
Israel • LINETEK LS15+H03VV-F+LP-41 1m	145000595	
UL • LINETEK LP-30B + SPT-2 + LS15 1m	145000594	
UK • LINETEK LP-61L+ H03VV-F+ LS15 1m	145000593	
Indian • LINETEK PE-361+ H05VV-F+ LS15 1m	145000592	
Italy • LINETEK LS15+H03VV-F+PE-336 1m	145000591	
Korea • LINETEK LS15+H05VV-F+LP-E04A 1m	145000590	
Australia • LINETEK LS15+H03VV-F+LP-23A 1m	145000589	
Taiwan • LINETEK LS15+VCTF+LP-53 1m	145000588	
Japan • LINETEK LS15+VCTF+LP-54 1m	145000587	
Africa • LINETEK LS15+H03VV-F+PE-364 1m	145000586	
CE • LINETEK LP-34+H03VV-F + LS15 1m	145000585	
CCC • Longwell LSG-31+RVV300/300+LS-18 1m	145000568	
Argentina • Longwell LP-24+H03VV-F+LS-18 1m	145000567	
Danmark • Longwell LP-40+H03VV-F+LS-18 1m	145000566	
Switzerland • Longwell LP-37+H03VV-F+LS-18 1m	145000565	
Brazil • Longwell LP-46+H03VV-F+LS-18 1m	145000564	

Table 10. Parts list—3-pin power cords (continued)

Region	P/N	CRU ID.
Israel • Longwell LP-41+H03VV-F+LS-18 1m	145000563	*
UL • Longwell LP-30B+SPT-2 18AWG+LS-18 1m	145000562	
UK • Longwell LP-61L+H03VV-F+LS-18 1m	145000561	
Indian • Longwell LP-67+BIS+LS-18 1m	145000560	
Italy • Longwell LP-22+H03VV-F+LS-18 1m	145000559	
Korea • Longwell LP-486+KTLH03VV-F+LS-5 1m	145000558	
Australia • Longwell LP-23A+LFC-3R+LS-18 1m	145000557	
Taiwan • Longwell LP-71+VCTF+LS-33 1m	145000556	
Japan • Longwell LP-54+VCTF+LS-18 1m	145000555	
Africa • Longwell LP-39+H03VV-F+LS-18 1m	145000554	
CE • Longwell LP-34A+H03VV-F+LS-18 1m	145000553	
CCC • VOLEX GB10S3+RVV 300/500+VAC5S 1m	145000538	
UL • Volex US15S3+SPT-2+VAC5S 1m	145000537	
UK • VOLEX MP5004+H03VV-F+VAC5S 1m	145000605	
Indian • VOLEX IA6A3+IS694+VAC5S 1m	145000536	
Switzerland • VOLEX MP232+H03VV-F+VAC5S 1m	145000524	
Italy • VOLEX IT10S3+HO3VV-F+VAC5S 1m	145000535	
Denmark • VOLEX MP233D+H03VV-F+VAC5S 1m	145000534	
Korea • VOLEX M2511+KETI IEC+VAC5S 1m	145000533	
Australia • VOLEX AU10S3+H03VV-F+VAC5S 1m	145000532	
Taiwan • VOLEX TW15CS3+VCTF+VAC5S 1m	145000531	
Japan • VOLEX VAC5S+VCTF+M755 1m	145000530	

Table 10. Parts list—3-pin power cords (continued)

Region	P/N	CRU ID.
Argentina • VOLEX VA2073+H03VV-F+VAC5S 1m	145000528	*
Brazil • VOLEX CH10S3+H03VV-F+VAC5S 1m	145000527	
Israel • VOLEX SI16S3+H03VV-F+VAC5S 1m	145000526	
CE • VOLEX M2511+HO3VV-F+VAC5S 1m	145000525	

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